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ABSTRACT

Published and unpublished literature is reviewed to identify and describe patterns of delivering vocational agriculture and home economics programs to students in small rural secondary schools. A conceptual model is developed based on patterns found in the literature. Non-school-based, school-based, and a combination of the two are identified as basic delivery approaches. Five delivery patterns are illustrated by descriptions of program, school, and community characteristics of existing programs. The delivery patterns include comprehensive high school, cooperative center, cooperative noncenter, cooperative mobile facilities, and residential. The school-based cooperative center and noncenter patterns are explored further. Organizational structures and consequences are discussed for 10 conceptual service delivery models based on center patterns, i.e., formally structured staff, budget, and courses, and noncenter patterns, i.e., coordination of existing programs between schools. Flow patterns of program elements in each model are analyzed. Need for rural vocational education, unique qualities of rural schools, and traditional vocational education programs are discussed. Ten criteria for evaluating service delivery patterns are presented. Advisory committee addresses and a program description worksheet are appended. (LFL)

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Approaches and Patterns for Delivering Agriculture and Home Economics Programs:

A Conceptual Model Based on a Review of Related Literature

Roland L. Peterson
Ruth G. Thomas
Judy Haugen
Rick Rabideau

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This report is the first in a series of reports resulting from Minnesota Agricultural Experiment Station research project 32-015, Delivery Patterns for Vo-Ag/Home Economics Education and Rural Community/Human Resources Development.

The authors are Roland L. Peterson, associate professor in the Agricultural Education Division, Department of Vocational-Technical Education; Ruth G. Thomas, assistant professor and head of the Home Economics Education Division, Department of Vocational-Technical Education; Judy Haugen, graduate assistant in the Division of Home Economics Education; and Rick Rabideau, graduate assistant in the Division of Agricultural Education, at the University of Minnesota, St. Paul.

TABLE OF CONTENTS

CHAPTER		PAGE
	ACKNOWLEDGEMENTS	5
	PREFACE	5
	ABSTRACT	6
I.	INTRODUCTION	7
	The Special Case of Rural Schools	8
	Historical Review	9
	Rural Vocational Education	9
	Vocational Education Opportunities for Rural Schools	10
II.	INITIAL CONCEPTUAL MODEL AND STUDY PROCEDURES	15
	Definition of Terms	18
	Program Inputs	18
	School Inputs	18
	Community Inputs	19
	Outcomes (Student)	19
	Outcomes (Community)	19
	Summary of Procedures	20
III.	LITERATURE REVIEW OF VARIOUS DELIVERY PATTERNS	21
	Comprehensive High School Patterns	21
	Program Inputs	22
	Input Factors	22
	Outcome Factors	23
	School Inputs	23
	Input Factors	23
	Outcome Factors	24
	Community Inputs	24
	Input Factors	24
	Outcome Factors	25
	Comprehensive High School Pattern Summary	25
	Cooperative Pattern	25
	Centers	25
	Cooperative Center Pattern	25
	Program Inputs	26
	Input Factors	26
	Outcome Factors	27
	School Inputs	28
	Input Factors	28
	Outcome Factors	28
	Community Inputs	29
	Input Factors	29
	Outcome Factors	29
	Cooperative Center Pattern Summary	30
	Cooperative Pattern	30
	Cooperative Noncenter	30
	Program Inputs	31
	Input Factors	31
	Outcome Factors	31
	School Inputs	31
	Input Factors	31
	Outcome Factors	31
	Community Inputs	32
	Input Factors	32
	Outcome Factors	32

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CHAPTER PAGE

Cooperative Pattern 32
Cooperative Mobile Facilities 32
Program Inputs 32
Input Factors 32
Outcome Factors 34
School Inputs 34
Input Factors 34
Outcome Factors 34
Community Inputs 34
Input Factors 34
Outcome Factors 34
Cooperative Mobile Facilities Pattern Summary 35
Residential Pattern 35
Residential Pattern Summary 35

IV. CONCEPTUAL MODELS RESULTING FROM AN ANALYSIS OF THE DATA 36

Center Patterns 38
Centralized Secondary Variation (Center Pattern) 38
Organizational Description 38
Consequences of Variation 38
Decentralized Secondary Variation 39
Organizational Description 39
Consequences of Variation 39
Centralized Secondary/Postsecondary Variation 39
Organizational Description 39
Consequences of Variation 39
Decentralized Secondary/Postsecondary (Center Pattern) 40
Organizational Description 40
Consequences of Variation 40
Mobile Facilities (Center Pattern) 40
Organizational Description 40
Consequences of Variation 41
Noncenter Pattern 41
Centralized Secondary Variation (Noncenter Pattern) 41
Organizational Description 41
Consequences of Variation 42
Decentralized Secondary Variation (Noncenter Pattern) 42
Organizational Description 42
Consequences of Variation 43
Centralized Secondary/Postsecondary Variation (Noncenter Pattern) 43
Organizational Description 43
Consequences of Variation 43
Decentralized Secondary/Postsecondary Variation (Noncenter Pattern) 43
Organizational Description 43
Consequences of Variation 43
Mobile Facilities Variation (Noncenter Pattern) 44
Organizational Description 44
Consequences of Variation 44
The Concept of Flow in Program Elements 45
Summary 50

V. SUMMARY, CONCLUSIONS, RECOMMENDATIONS 51

Summary 51
Recommendations 52

BIBLIOGRAPHY 54

APPENDIX A 56

APPENDIX B 58

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PREFACE

This report is the result of the first phase of a research project designed to identify patterns for delivering vocational agriculture and home economics programs to students enrolled in small rural secondary schools.

The data in this report are based on a review of literature conducted in 1979 and 1980. This study was initiated jointly by staff members in agricultural education and home economics at the University of Nebraska, Lincoln, and the University of Minnesota, St. Paul. The initial question which triggered this study was "How do you plan to provide vocational agriculture and home economics programs to small rural schools facing severe declines in student enrollment?" With this question in mind, it seemed logical to examine the literature to determine the work that had been completed on this problem. Secondly, it seemed reasonable to determine the action states were taking with respect to this problem. Since the investigators were aware that states may formulate policy and generate programs to deal with this problem, a survey of state activities was also launched. The staff at the University of Minnesota addressed themselves to a review of the literature and the University of Nebraska conducted a nationwide survey of the states.

In this report, the results of the literature search are described in terms of four principle objectives:

1. To obtain an overview of research studies which focused on providing vocational agriculture and home economics programs to students enrolled in small rural secondary schools;

2. To develop a conceptual model for identifying delivery patterns being used to deliver vocational agriculture and home economics programs to students enrolled in small rural secondary schools;

3. To identify a list of school, program, and community inputs to be used in analyzing potential delivery patterns used by secondary schools; and

4. To develop a basis for conducting and analyzing a series of case studies on delivery patterns used by small rural secondary schools as a means of providing vocational agriculture and home economics programs to students.

The literature search consisted of examining approximately 5,600 bibliographic references generated by ERIC and AIM/ARM computer searches. Books, journals, and reports in personal files were also examined. Data reported in this study reflect the limited degree of research completed on the problem. In examining the literature review section, the reader will note that there are practically no references to vocational agriculture and home economics programs. There were basically no research reports on these two subjects. Consequently, the investigators have used research efforts directed at vocational education in general to identify various delivery patterns. It will remain to be seen in future case studies if the variables and patterns identified have application to vocational agriculture and home economics programs.

This report is presented in five chapters. Chapter I is an introduction to the problem to be considered in a series of investigations focusing on the impact of various patterns for delivering vocational agriculture and home economics programs to students in small rural communities. The chapter attempts to build a rationale for the unique aspects of small rural schools, their role in the

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community, and the opportunities for vocational programs in small rural schools. Chapter II focuses on the procedures used in the literature review. It identifies the fundamental concepts used to guide the review of literature and serves as a model for further investigations. Chapter III contains the literature review. The review is developed around five basic delivery patterns which were evident in the literature. Chapter IV presents a conceptual analysis of initial observations, relationships suggested by the data presented in Chapter III, and highlights the school-based approach in delivering programs. This chapter also presents an analysis of the flow of various program elements evident in each pattern and variation. Chapter V includes a summary and the conclusions reached, and provides a basis for a series of case studies to be conducted on each of the delivery patterns and variations within each pattern.

ABSTRACT

The central purpose of this study was to review the literature as a means of identifying and describing systems for delivering vocational agriculture and home economics programs to students in small rural schools. One aim was to obtain an overview of research studies which focused on providing vocational agriculture and home economics programs to students in these schools. The literature search produced an extremely limited number of research studies. The studies that were reported reflected work in many areas of vocational education rather than agriculture and home economics specifically. The second objective was to develop a conceptual model for identifying various delivery patterns. Despite the lack of research studies, a number of delivery patterns emerged from the literature review. An initial conceptual model was developed identifying key elements in any delivery system. Three basic approaches were identified as non-school-based, school-based, and a combination of school- and non-school-based delivery systems. The literature revealed the importance of the school in small rural communities. Therefore, the investigators pursued various delivery patterns in the school-based approach. A third objective was to identify school, program, and community inputs to be used in analyzing potential delivery patterns. The literature provided these basic inputs. A fourth objective was to develop a conceptual model from the delivery patterns reported in the literature review.

One key phenomenon that emerged from the literature was the existence of cooperation within and between schools in providing vocational agriculture and home economics programs in sparsely populated areas. This cooperation appeared to take different forms. Some tentative hypotheses intended to guide further inquiry were formulated.

CHAPTER I

INTRODUCTION

Today, talk about program expansion or the offering of additional opportunities for young people is likely to be greeted with "sudden death" by school administrators, state agency planners, boards of education, legislators, and others in government or administrative positions. With declining enrollments in secondary schools, tax rebellions, and inflated costs all working against expansion, the mere mention of program development seems to be counter to the trend of cutting back in education. If a school does not currently have vocational agriculture or home economics in its curriculum, the chances of these programs being made available are very limited. In searching for ways to reduce budgets and cut programs, these two program areas can come under close scrutiny. Consequently, students in many small rural schools are being or may be deprived of having an opportunity to receive educational experiences in vocational agriculture and home economics.

State legislatures appear to struggle during every session to devise sources of funding that equalize educational expenditures for rural and urban schools. However, despite these attempts numerous literature citings indicate that small rural schools are finding survival extremely difficult. In Minnesota and Nebraska, vocational agriculture programs are not offered to students in approximately 50 percent of the high schools in small rural areas. While consumer home economics courses are available in a high percentage of the high schools, wage-earning vocational home economics is practically nonexistent in rural schools. In recent years, the development of cooperative secondary vocational centers has saved programs or brought vocational agriculture and wage-earning home economics to students in rural schools in Minnesota. However, in some instances, administrators, school boards, teachers, parents, and students seem to be dissatisfied with programs offered in a vocational center. In reading newspapers or visiting with school administrators, it is evident that a number of rural Minnesota schools have been "pulling out" of the center because of problems associated with (1) transporting students 20 to 40 miles each day, (2) taking three hours of time away from the home school, and (3) taking scarce dollars away from a local school. Obviously, multidistrict cooperation is not without its problems. One solution to this situation frequently offered by some educational planners is the consolidation of these small rural schools.

In reviewing the literature, it is evident that a number of decisionmakers seem to propose the general idea that big schools will be more efficient, require less money to operate, and do a more effective job of educating students. School consolidation activities have been initiated around the country. In a recent research report of Sher and Tompkins (1976), some rather interesting counter questions were raised in terms of economy, efficiency, and the equality of so-called "big" schools. They reviewed a number of claims which state that school consolidation results in a more economical school, more efficient in its use of facilities, personnel, and resources, and more equal opportunities for students. In their investigation, the authors revealed that some claims held by big school administrators exist without sound research evidence. They point out that economies of scale (the reduction of unit costs as size increases) is both a simple and much abused concept used by proponents of big schools. They suggest that there are offsetting diseconomies of scale attributable to increased size of school operation. Additional capital expenditures, salaries, operating costs such as transportation, and distribution of supplies totally eliminate any so-called "savings" that might have accumulated because of reorganization. Though the curriculum may be limited in small schools, the opportunity for participation in many activities is offered as a strength of small schools making the quality of education question somewhat moot.

Today, the search for a way to provide educational experiences in agriculture and home economics subject matter areas is of concern because of the real employment opportunities in those areas. Students living in rural areas are likely to find employment in the vast field of agriculture as well as in wage-earning home economics positions. There is also concern for maintaining strength in consumer homemaking programs because most students will enter home and family roles, roles that are becoming increasingly complex in rural as well as urban America.

In view of the literature review and the situation which exists in rural Nebraska and Minnesota, it seems appropriate that a study be made to (1) determine alternative means of delivering quality vocational agriculture and vocational home economics programs to persons in rural areas through some type of school district or school system organization, (2) to assess the impact of these delivery systems upon human resources development in rural communities, and (3) to develop a system by which communities can build components into a pattern for delivering quality vocational agriculture

and home economics programs. To date research efforts are extremely limited and their focus seems to be directed primarily at low enrollment problems in rural schools and the need for multidistrict cooperation. The studies seem to imply that number of courses offered reflect (1) students available and (2) quality of program. The major purpose of this study is to provide a rural community with information for making decisions regarding delivery of vocational agriculture and home economics.

The Special Case of Rural Schools

Where have all the students gone? Educators are suddenly finding considerable space in classrooms that were once overflowing with students. Rural America is no exception to the decline in school-age population. According to a report by the Minnesota state demographer (1977), 38 percent of all secondary schools (grades 7-12) in Minnesota have fewer than 300 students, and many of them are in areas projected for substantial decline--up to 50 percent. The report also suggested that many of these schools had 25 or fewer graduating seniors and within a few years this number will likely become 12 or fewer, which was characteristic of the 1920s and '30s. The coming decades pose a number of difficult decisions for educators. What will be the nature of educational programs in rural communities?

In a paper on vocational education in rural America, Sher (1979) stated that:

> If ignorance is truly bliss, then what is currently known about rural vocational education should invoke feelings of unbridled joy. In this age of alleged 'information overloads' the paucity of reliable data on vocational education in rural areas is nothing short of startling. Conflicting and seemingly contradictory impressions and assumptions are commonplace. Given the absence of any systematic investigations, speculation and random anecdotes have become primary data sources.

Sher (1979) pointed out that conflicting information and perceptions abound regarding vocational education in rural areas. On the one hand, state and federal policymakers frequently claim that rural areas receive more than their "fair share" of available vocational education resources while on the other hand, local educators imply that rural students are being short-changed. Rural vocational education is often labeled by some as outdated and in need of reform and praised by others for its quality and significant contributions to students.

Sher (1979) suggested that, despite the incongruities these claims display, they all bear a measure of validity because (1) rural America is so diverse that there is evidence to support any characterization, and (2) it is very difficult to distinguish major and minor trends and extraordinary circumstances from the commonplace ones because of an absence of reliable state and national research data. He stated that:

> Thus, it is likely that there is at least some basis in fact for all of the conflicting assertions made about rural vocational education. Nevertheless, the historic problem has been one of discerning not only the present extent to which any of these claimed characteristics are present in America's rural communities, but also one of identifying sets of circumstances which correlate with each of these characterizations. In other words, we need to know not only how many rural communities are served by excellent vocational education facilities, but also whether the presence of excellent facilities is a function of local wealth and preferences, state policies and practices, federal initiatives to aid the disadvantaged, or some combination thereof. This kind of genuine understanding of rural vocational education is all but nonexistent today.

It is apparent that much work needs to be completed in terms of learning about the possibilities for delivering vocational programs in all vocational areas to students in rural areas. The focus of this study centers on vocational agriculture and home economics programs. This paper is concerned with identifying and grouping ways in which vocational agriculture and home economics are offered as reported in the literature, and with determining alternative patterns for delivering vocational agriculture and home economics instruction to youth in rural communities. In reviewing the current literature, one is led to support Sher's conclusion that there are little baseline data available for educators to use in deciding how best to support such education to students in rural communities. One cannot help but be curious about how and why we are faced with this situation today.

Historical Review

Rosenfeld (1979) provided a historical perspective on vocational education in rural communities by reviewing the background of the Smith-Hughes Act of 1917 which charted the goals for the act. He summarized a number of viewpoints by stating that:

> America, at the turn of the century, was still predominantly agricultural and farm organizations such as the Grange were also lobbying heavily for the bill. The Smith-Hughes Act, after all, was preceded by the Smith-Lever Act which provided for agricultural extension programs. Vocational education, then, was not only a response to occupational needs of industry but to the demands of rural educators struggling to make rural education more relevant to rural experience . . . Vocational education, however optimistic, was expected to slow migration of the more schooled youth to the cities. In the end, the farm lobbies were effective and half of the funds from the Smith-Hughes Act were directed toward agricultural programs. The other half was split between home economics (another rural oriented program) and trade and industrial programs.

Rosenfeld (1979) further pointed out that the Vocational Education Acts of 1929, 1934, 1936, and 1946 increased the level of funding and specified programs for funding. Agriculture maintained its position of being the recipient of an identifiable portion of funds. The Vocational Education Act of 1963 and subsequent amendments provided significant increases in levels of funding and a shift away from vocational service area designation as criteria for funding distribution, with the exception of consumer homemaking funds. As a result, block grants were allocated to states based on a state plan for distribution. The criteria for distributing the funds included incidence of high unemployment and depressed areas, low-income family concentration, number of disadvantaged persons and considered relative wealth of the district, handicapped persons, postsecondary and adult programs. As one can see from these criteria, this process of funding has built-in contradictions. Rosenfeld further revealed that as federal dollars remain constant and inflation continues, the influence of federal policies declines. This results in local schools simply abandoning the use of federal monies because the relatively few dollars are not worth all the paper work demanded. He also suggested that federal and state mandates attached to the monies make them less influential on actual programs. Consequently, their impact on local programs in rural communities may be negligible.

Rosenfeld's comments lead to the conclusion that the federal government has had a significant influence on the development of vocational education. However, that influence has been greatly diminished over the years and today may have an insignificant impact on the programs students in rural areas are experiencing.

Rural Vocational Education

One fact established earlier in this bulletin focused on the issue of declining numbers of students in rural communities. Consequently, it follows that there is a decline in the number of students available for vocational programs in rural schools.

Rosenfeld (1979) pointed out that there is nothing in the federal Vocational Education Acts and subsequent amendments that reflects on specific rural needs. In fact, due to shifts in funding distribution criteria, large districts with greater numbers of students are likely the targets of larger amounts of vocational monies and students in rural areas are denied an equal portion of support.

To add to the dilemma of rural areas, Rosenfeld (1979) stated that

> Not only are diseconomies of scale rarely considered in federal policy, but small schools are even denied as legitimate vocational institutions. Many state and federal programs require five or more programs for eligibility. Furthermore, many federally funded studies of vocational education survey only schools with five or more programs, biasing the results. In Nebraska, for instance, this results in missing 160 of 210 high schools that do offer vocational education. A 1976 House Committee reported that 46% of rural students do <u>not</u> have access to schools with five or more programs.

In addressing the issue of accessibility, Rosenfeld (1979) suggested that the most common solution to providing programs for rural areas has been the consolidation of programs into area vocational

centers. He pointed out that these consolidated centers can be successful in rural areas where communities are relatively close together. Distance and travel may be real deterrents when students travel great distances. In Minnesota, for example, some cooperating schools have withdrawn from a center because of distance, because students may have negative attitudes about enrolling in courses at another school, and because communities perceive a negative effect on the home school when students take courses elsewhere.

Rosenfeld (1979) suggested that:

> One way in which this conservatism plays itself out in rural areas could be counter-productive for policies that are 'non-traditional'--for example, those concerning the role of women. Farm wives historically have been essential (but non-paid) workers in an agricultural economy. The role of the homemaker is often considered vital to sustaining family and community stability and anything that detracts from this role is suspect. My own observations in rural schools indicate a reluctance to change. Even though farm women work in the fields and drive tractors, there are informal prohibitions when it comes to women entering non-traditional paid occupations.

Christensen (1965) found that employers believed farm-reared people had learned good work habits and developed other characteristics that make them favorable employees. However, these people had limited opportunities to develop a background in nonfarm businesses.

Griessman (1969) stated that in many rural schools the opportunities for occupational education are limited to courses in vocational agriculture or homemaking education. He further stated that reductions in funds for vocational agriculture have been resisted on the grounds that the agribusiness dimension of agriculture is expanding greatly. He argued that for vocational agriculture to sustain itself, it must be demonstrated that students are prepared for a wide range of jobs encompassed by agribusiness. He also stated that the largest federally supported vocational program in the high school is homemaking or home economics. He wrote that the primary objective of the program has been to prepare girls for homemaking responsibilities and only recently has the program attempted to prepare people for jobs.

In reviewing the literature regarding vocational education and specifically vocational agriculture and home economics programs in rural communities, it became evident that researchers have focused on (1) the unique characteristics of rural life and rural communities, (2) the dilemma of a shrinking rural population, and (3) the future strategies of educating youth in rural areas. Griessman (1969) pointed out that despite the fact that industry is being decentralized to rural areas, those industries generally do not employ a large number of skilled workers. In fact, management and the skilled workers are frequently imported. Though the industry was beneficial to a community, the individual employee is probably receiving low pay. He indicated that the low cost of labor may be the key reason industries select rural communities. Consequently, the influx of industry into rural communities may not be greatly beneficial for upgrading the economic level of rural families or for designing future educational programs.

The work habits and attitudes in rural communities remain unique to the rural society. A view of rural living reveals that the agricultural community still approaches farm life as a whole family experience. Though the production of food has become highly mechanized, one may find wives, sons, and daughters of the typical farm family taking an active role in the farming processes from planting through harvest.

Vocational Education Opportunities for Rural Schools

The National Advisory Council on Vocational Education (1968) indicated that rural school districts were found to be too small to provide diversified curricula. They indicated that relief to the problem might be found in consolidation or providing area vocational schools. Sweany (1967) pointed out that consolidation is not the answer where weather, distances, or conditions influence transportation. In reviewing a great deal of literature concerning the school consolidation issue, it becomes evident that strong pros and cons emerge concerning the merits of the small public rural school. The argument that big schools represent efficiency and quality education has been refuted by those who view rural schools as a place for meaningful education to occur. The report Conant (1959) publicized indicated that only large secondary schools could deliver a quality education. Research by Colemen (1966) suggested that all the input resources of schools (which large schools supposedly have in abundance) do not necessarily correlate with school achievement. Stemnock (1974) stated that

> . . . the results of the Conant study have been invalidated because the smallest schools had higher than average mean achievement scores from their student population as compared to the quality big schools. In fact educational research has failed to identify a single resource or practice that is consistently effective in promoting achievement. The results indicate that the more critical factor influencing achievement in schools is the manner, purpose and competence with which whatever resources possessed are utilized.

Fabian (1975) stated that a student's academic achievement cannot be attributed to the size of school. The nation's most rural state (Vermont), with its small high schools, has done equally as well as its larger counterparts on the percentage of graduates entering college. Raymond (1968) reported that whatever positive differences found between student achievement and attendance in large schools and small rural schools were attributable to population characteristics that are outside and beyond the control of the school system. Some of those characteristics referred to are (1) the socioeconomic status of the family and community, (2) the level of family education and income, and (3) the values placed on education within the community.

In reviewing the literature on schools in rural areas, one discovers a real dichotomy. Small rural schools can provide convincing arguments why they should remain in operation. The dilemma of a shrinking population places a real strain on their ability to provide a somewhat varied curriculum. One aspect that many studies pointed out as real weaknesses in rural schools was the limited number of courses available to students. In an attempt to meet this need, it seemed that the vocational center concept provided an opportunity for students to experience a broader based curriculum. The vocational center refers to an organizational structure in which two or more schools joined together; formed an administrative team and a teaching staff; rented, purchased, or constructed a centrally located facility; purchased tools and equipment; and developed a budget.

Amberson (1968) recommended that schools limited by geographical isolation, school size, and other factors associated with the rural scene should seek some of the following approaches to solve their problems:

1. sharing vocational education services between schools,
2. sharing vocational education teachers between schools,
3. sharing vocational education counselors between schools,
4. providing special financial inducements to schools for offering quality vocational education programs, and
5. stimulating vocational education programs coordinated by general or vocational teachers so that youth might develop competencies desirable and necessary for entry into occupations.

Helt (1978), in a paper on school consolidation, stated that:

> . . . before a community makes a commitment to consolidate its school. A very real issue to consider is the amount of school contact time that will be wasted by rural students that may have to be transported to a vocational center, comprehensive school or even satellite school. Those precious hours of the school day may justify a much more vital role in a rural student's life than wasting 10% of his school contact time riding a bus.
>
> If indeed the decision is reached to send students from a small high school to a vocational center; then the offering must provide an "exemplary" educational program to those students who must sacrifice their personal school contact time from studies provided at the home school. Additional considerations to be sought are assuring a commitment from participating small school districts for student and financial support. The communications between school boards, administrators, guidance personnel, teachers, parents, and students are crucial to the educational goals assumed by these cooperating community institutions.

Since the issue for many small schools seems to center on whether they consolidate and form a larger comprehensive high school or a vocational center school, Helt (1978) compared the two delivery systems by listing the advantages and disadvantages of each in terms of (1) administration, (2) faculty, (3) facilities, and (4) student selection. That comparison follows:

A. Administration

1. Vocational center school
   a. Advantages
      1) The administration may have the sole responsibility for vocational education programs.
      2) Vocational directors are usually professional vocational educators that are more familiar with vocational programs than administrators of comprehensive high schools.
      3) Administrators are able to stay in touch more closely on a day-to-day basis than school superintendents.
      4) Vocational directors may be housed in the vocational center location if separate facility is provided.
   b. Disadvantages
      1) Sometimes directors are not vocationally oriented.
      2) Administrators of the vocational center have to cope with problems of the administrations of the feeder (small) schools.
      3) The director of the center is not the administrator of all other vocational education taught at the cooperating small schools which they may have chosen to retain.

2. Comprehensive high school
   a. Advantages
      1) The superintendent is in charge of all the vocational programs in the district.
      2) The superintendent is not confronted by problems of administrators in feeder (small) schools.
      3) Administrative efforts are not duplicated by having a separate administration for the vocational center.
   b. Disadvantages
      1) Administrators may not know what is going on in the vocational programs.
      2) The administration is responsible for vocational as well as academic programs.
      3) The administrator is frequently housed at a different building away from the vocational program setting.

B. Faculty

1. Vocational center school
   a. Advantages
      1) The faculty may be a highly select staff that possesses a high degree of competence in the specialized areas that each teaches.
      2) The staff may be a closer group being all of them are vocational teachers.
   b. Disadvantages
      1) The faculty may be narrowminded toward the total educational needs of the student when all are vocational educators.
      2) The faculty does not have the opportunity to associate with academic teachers as much as if they were in the comprehensive schools.

2. Comprehensive high school
   a. Advantages
      1) Faculty gets broader view of the total educational program.
      2) Faculty has the opportunity to associate with teachers involved in academic teaching too.
   b. Disadvantages
      1) The vocational education faculty does not have all that much in common with the academic teachers.
      2) Faculty meetings and/or in-service sessions may be a waste of time if nearly all points discussed pertain to academics.

C. Facilities

1. Vocational center school
   a. Advantages
      1) The facilities are often new and built to meet the latest space, safety and efficiency specifications that replicate conditions of industry.
      2) Shops are usually built so they do not disrupt classroom activities.
      3) Facilities are frequently designed with classroom laboratory and shops to meet the purpose of the specific program.
   b. Disadvantages
      1) The facilities are often located a distance from each of the feeder (cooperating) schools.
      2) The facilities are often built too small to house as many students that want vocational education.
      3) The facilities, as well as the total vocational education program, are expensive.

2. Comprehensive high school
   a. Advantages
      1) The facilities are easily accessible to the students.
      2) The facilities are often too small to have to be shared by more than one program in the school.
      3) Shops and labs may be located inconveniently and disrupt other academic classrooms.

D. Student Selection

1. Vocational center school
   a. Advantages
      1) Students are more highly selected according to their career objective.
      2) Selection of students is done as a cooperative effort between the vocational center and the home school.
   b. Disadvantages
      1) The directors and teachers of the center too often do not have a voice in student selection.
      2) Selection is done solely by the guidance staff within each cooperating school.

2. Comprehensive high school
   a. Advantages
      1) The vocational teaching staff is right there with the guidance staff when it comes time to select students.
      2) There is not a feeling that another school is dumping their problem student on the vocational center.
   b. Disadvantages
      1) The vocational program may become a dumping ground.
      2) Students are not as closely selected as they are when they go out to the center school.

In a study focused on evaluating student travel to area vocational training center, Tadlock (1979) summarized his research by stating that the economic realities of declining enrollment should serve to establish cooperative programs as an integral part of America's educational system. He further suggested that cooperative arrangements can provide many of the benefits of consolidation without the political hassle. He found that a relatively small percentage of students actually travel (majority of the students are from the host school), but would if (1) they were aware of the course offerings, (2) were offered courses that related to their occupational goals and needs, and (3) were actively encouraged and recruited.

Hoagland (1968) summarized the issue of delivery patterns for vocational education by stating that the literature identifies many methods of providing vocational education through cooperative district ventures. He indicated that the methods may be classified as either (1) a single vocational center, (2) a satellite center, (3) a mobile classroom operation, or (4) some of the methods may use combinations of the three basic types.

In an article about the "not-so-second-rate rural schools," Thompson (1978) wrote that students participate in more activities when they attend small schools and parental involvement, community support, and individualized instruction are among the ideals that already exist with small schools and which large schools struggle to achieve.

In summary, school consolidation has been a popular and widely used scheme for generating quality educational experiences for students in rural areas. However, it does not seem to be the final answer in every situation. As a result of the dissatisfactions with consolidation of small rural schools, one is led to view the concept of cooperation in delivering vocational education as a viable alternative. Numerous writings have referred to the cooperative vocational center concept as a possibility, but relatively few studies have focused on analyzing the centers already in existence. The small rural school is a diverse and complex organization. It serves as a basis for educational and social experiences for the entire community. Legislative actions have often overlooked the unique qualities of rural areas. It is evident that the life styles of people living in rural areas represent values that have high priority. With the exception of school consolidation and cooperative activities, there appears to be very limited writings on alternative approaches to delivering vocational agriculture and home economics programs for youth in rural communities.

CHAPTER II

INITIAL CONCEPTUAL MODEL AND STUDY PROCEDURES

The central purpose of this study was to identify and describe systems for delivering vocational agriculture and home economics education programs to students in small rural schools. This study was designed to enable additional assessment of the impact of various systems upon human and rural community resources, and propose alternative models for schools to examine and use as guidelines in planning programs.

In the early stages of the project, an advisory committee representing a variety of agencies and interests in rural schools and communities was established (see Appendix A). From this group, a conceptual model emerged which served as a guide for exploring the literature. The model was also designed to provide a basis for empirical investigations. The model was formulated by posing a number of questions which reflected the attributes of existing and possible delivery systems for programs in vocational agriculture and home economics. Some of the guiding questions were:

1. Is the program located in a regular secondary school setting, or is it in a nonschool setting, or both?

2. Is travel involved? That is, do the students, teachers, equipment, or materials travel?

3. Is the program physically located in a centralized (single school) facility or is it decentralized (housed in more than one facility)?

4. If the site is a separate building, is it a secondary or postsecondary institution?

5. If the program consists of a combination school and nonschool situation, does it involve

   (a) full-time school, full-time work?

   (b) part-time school, part-time work?

   (c) full-time school, part-time work?

   (d) part-time school, full-time work?

The components identified in these questions were significant in providing a framework for conceptualizing categories of delivery patterns for bringing vocational agriculture and home economics programs to students in small rural schools. The components identified in these questions also provided a basis for examining possible interrelationships between various delivery systems. Following the advisory committee's discussion of these questions, a committee member constructed the initial conceptual model. The model presented in Figure 1 attempts to summarize the initial thinking of the committee regarding delivery patterns. The model centers around six basic concerns: (1) source of each delivery pattern, i.e., school-based, work-based, or home-based; (2) the base of operations of the program, i.e., if the program is both school- and non-school-based, what are the possible combinations of school and work; (3) the basic issue of travel involved in the patterns, i.e., do facilities, teachers, or students travel to the teaching site; (4) the nature of the students involved in the pattern, i.e., if there are only vocational students traveling to a school or students from the entire school population; (5) the location of the school site, i.e., is a central school used or do students, teachers, and facilities move to each of the participating schools; and (6) the involvement of a postsecondary school, i.e., are postsecondary resources used for secondary school programs.

Further, the model presented in Figure 1 led the research staff to think in terms of the potential relationships that may exist between various dimensions of the school and community. Bidwell (1975) supported this thought by suggesting that the short-run problem for school districts is to transform such inputs as students, resources, staff, technology, and community preferences into outputs such as student achievement, operating within the limits set by the law and public policy. As a method for examining these relationships between the school and community, the research staff prepared a list of inputs under each of three general categories, namely, school, program, and community. The school category was divided into a general overall school segment and a specific

Figure 1. A conceptual model for delivering vocational agriculture and home economics programs to students in rural areas.

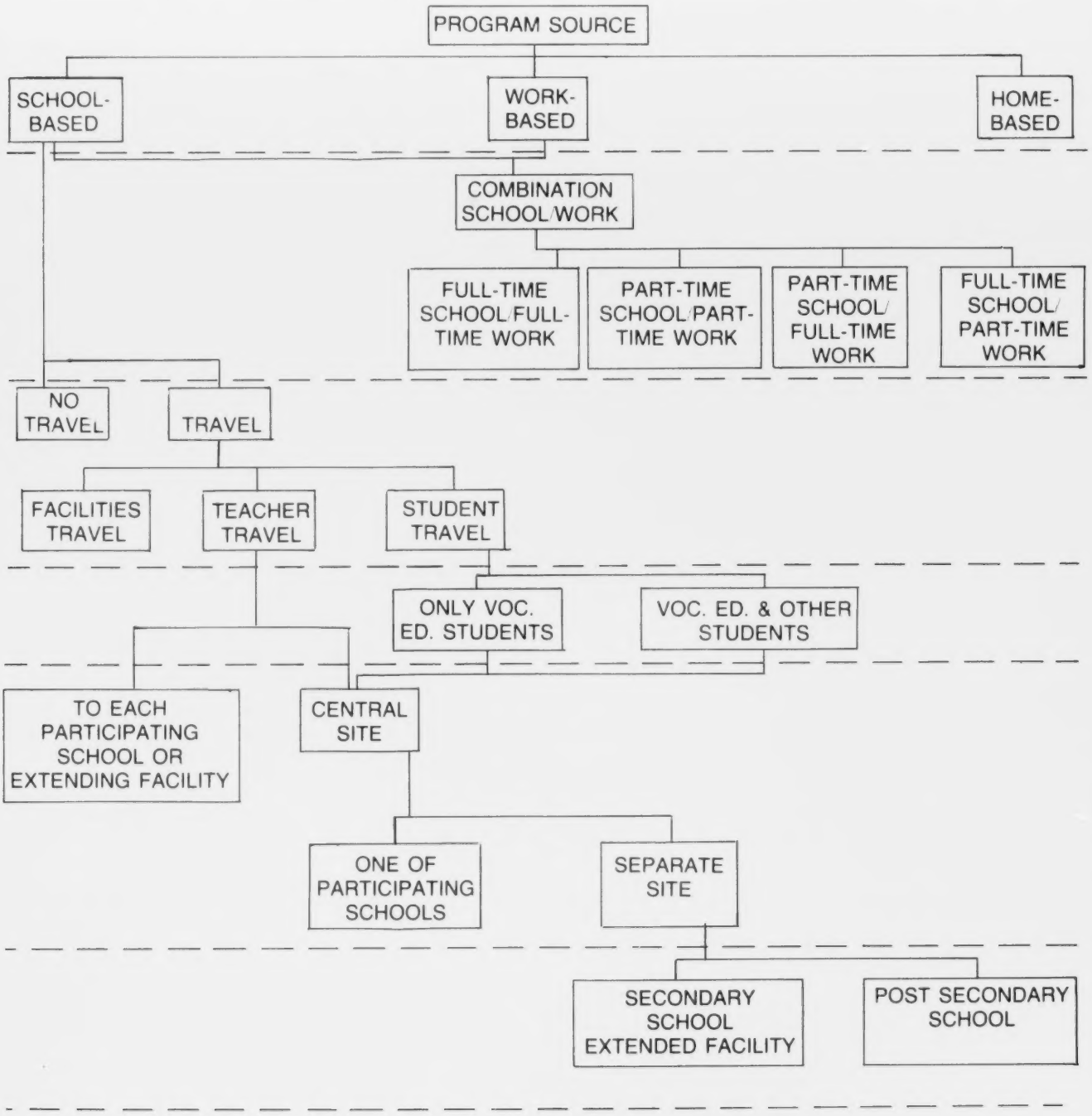


Figure 2. List of input and economic factors relevant to vocational education delivery patterns.

PROGRAM INPUTS
- curriculum
- program size
- travel involved
- facilities
- student
  - age
  - attitude
  - grade level
  - prior education
  - drop out rates
  - ethnic
- administration of vocational program
- program staff
  - size
  - qualifications
  - attitudes
  - teaching loads
- cost
- schedules
- advisory groups
- student organization
- policies

SCHOOL INPUTS
- governance
- total curriculum
- school size
- school facilities
- students
  - college/vocational orientation
  - families
  - special needs
  - dropout rates
- administration of school district
- budget resource base
- school schedules
- school staff
  - size
  - qualifications
  - attitudes
- policies

COMMUNITY INPUTS
- size (population/square miles)
- geographical location
- culture-ethnic
- socioeconomic
  - tax base
  - unemployment
  - poverty level
  - average age
  - prior education
- mobility
- employment opportunities
- educational opportunities

RESULTING OUTCOMES

Student:
- skills and abilities
- attitudes
- future plans
- future placement

Community:
- trained personnel available
- program and school knowledge
- program and school relationships

program segment. The community category became a third category. A list of potential inputs was developed under each category. The lists provided in Figure 2 were used as a guide in reviewing and summarizing the literature. By using the list of inputs and outcomes, each research report reviewed was examined with a comparable grouping of data. Consequently, each study could be reported and examined for potential relationships between the program, school, and community inputs and outcomes in terms of student skills and abilities, attitudes, future plans, and job placement, and personnel available to a community. The basis for selecting the inputs and outcomes suggested in Figure 2 was their value as descriptive dimensions of programs.

Definition of Terms

The following definitions are provided for various terms used in this report:

Small rural school--Sher (1977) suggested that definitions of rural America are destined to be both population based and arbitrary. The Census Bureau defines urban areas as places having more than 2,500 inhabitants and classifies all others as rural. In a general way, "rural" implies both small communities and low population densities. Rural education can mean a one-room schoolhouse or a district with several hundred square miles. Some rural districts are growing and are self-sufficient. In this study, "small rural school" generally refers to a school district with problems of sparsity and isolation from educational, governmental, and economic systems found in larger growing rural and metropolitan areas.

Program Inputs

Program--the single program area of vocational agriculture or home economics in a school.

Curriculum--the course offerings and experiences available within the vocational agriculture and home economics programs.

Program size--the number of students and grades served by the program.

Travel--the distance or miles students were required to travel to a program.

Facilities--the buildings, room, and equipment utilized by a program.

Students--the number, ages, grades, attitudes, and social and ethnic characteristics and future plans of students served by a program.

Prior education--courses in which students enrolled previous to enrollment in the current program.

Dropout rates--student dropout rate for a program.

Administration of vocational program--the organizational and administrative structure of the program.

Program staff--the size, responsibilities, educational preparation, and attitudes of the staff.

Cost--the costs involved in a program.

Schedules--the time allotted and the placement of the program within the total school schedule.

Advisory groups--the nature, purpose, and makeup of citizen advisory groups for a program.

Student organization--the vocational student organizations available, membership, yearly programs, and attendance.

Policies--program policies governing student enrollment, achievement, behavior.

School Inputs

School--the educational institution recognized within a community as the public school.

Governance--the governing body and processes for the school.

Total curriculum--the total academic, vocational, and extracurricular experiences available in the school, schools, or school district.

School size--the total number of students, schools, and grades served by the school, schools, or school district. (May also refer to square miles.)

School facilities--the buildings and equipment available.

Students--the individuals served by the school described in terms of their attitudes toward college preparatory and vocational education, family background, interest, and involvement in school affairs.

Dropout rate--total school student dropout rate.

Administration of school district--the organizational and administrative structure of the school, schools, or school district.

Budget and resource base--the property valuation base and tax rate, school budget and/or actual costs associated with the school, schools, or school district.

School schedules--the yearly and daily time frame within which classes are offered in the school, schools, or school district.

School staff--the number, educational preparation, and attitudes of the schools' administrative and teaching staff.

Policies--school policies regarding management, teaching staff, program development, students, student organization, community.

Community Inputs

Community--the organized government or trade center and population of an area.

Size--the 1960 and 1970 population of the community or area.

Geographical location--the city, county, and state location of the community, topography.

Cultural-ethnic--the ethnic and cultural characteristics of the school or area.

Socioeconomic--the number of people by age, number of households, median family income, tax base, the percent of families below poverty level ($7,000), number of people employed and unemployed, and the median school years as reported in the 1970 U.S. Census.

Mobility--the number of people or families moving into and out of the area.

Employment opportunities--major industries and employment ratio.

Educational opportunities--schools and educational programs available in the area such as community colleges and area vocational technical institutes.

Outcomes (Student)

Student outcomes--the impact of school, program, and community inputs on student skills, abilities, attitudes, and employment as reflected in the lives of students.

Skills and abilities--the expertise and knowledge gained by students.

Attitudes--anticipated, stated, or observed changes in students' attitudes.

Future plans--anticipated or actual future plans of students.

Future placement--anticipated or actual placement/employment of students.

Outcomes (Community)

Community outcomes--the benefits a community derives from the inputs of a school, a program, or the community itself.

Trained personnel available--the trained personnel available to local industry.

Program and school knowledge--the understanding of the program and perceived benefits from the program by members of the local community.

Program and school relationships--attitudes of community toward program and school; working relationships established.

Summary of Procedures

The first step in the organization of this study was to conceptualize a framework for conducting the review of literature. An advisory committee was formed early in the project. This committee suggested an initial conceptual model which guided the review of the literature.

The second step in the study was the literature search. The literature review involved the computer search services of Walter Library at the University of Minnesota. The following key word or word phrases were used in the ERIC and AIM/ARM searches:

Ag	Home Ec	New Programs
Ag Ed	Home Economics	Population
Agriculture	Home Economics Education	Rural
Agriculture Education	Innovative Programs	Rural Areas
Curriculum	Instruction Delivery	Rural School Systems
Delivery System	Low Density	Rural Youth
Disadvantaged		

The third step was to identify research studies that focused on various patterns for delivering vocational agriculture and home economics programs to students in small rural schools. This search produced 5,674 bibliographic references. The references were carefully reviewed and eight were selected as research studies that reflected various patterns for delivering vocational education. It should be noted that the eight studies selected represented the broad field of vocational education. There were no studies directly related to vocational agriculture or home economics. A standard form was developed to assist in gathering the appropriate data from the references reviewed (see Appendix B).

CHAPTER III

LITERATURE REVIEW OF VARIOUS DELIVERY PATTERNS

The conceptual model presented in Chapter II of this report provided a basis for reviewing the literature. The central purpose of this study was to search the literature and examine various patterns for delivering vocational agriculture and home economics programs to students in small rural schools. In view of the conceptual model presented, the researchers' examination of the literature led to discovering three basic approaches for delivering these educational programs. It was clearly evident that the public school system plays a major role in delivering vocational agriculture and home economics programs to students in rural areas. Consequently, the school-centered effort was labeled as a school-based approach. Another approach that is highly visible in rural communities is the non-school-based approach. The 4-H Club organization, the cooperative extension service, educational television, and correspondence courses are also variations for delivering programs. This approach was discussed by one of the members of the advisory committee and the researchers kept it in mind throughout the investigation. A third approach evident in the literature was a combination of school- and non-school-based patterns. Students attending public school classes part of the day and working in business firms in apprenticeships and internships part of the day (farm, agribusiness, or in wage-earning home economics occupations) are also practices being followed by rural schools.

Since the public school system seemed to receive the central focus of research efforts aimed at evaluating means for delivering programs, the research staff focused the literature review on the school-based approach. One major difficulty encountered in conducting this review was that the bibliographic references provided a vast number of papers, articles, conference summaries, and reports of experimental programs but few actual research investigations. There were no research efforts designed to focus exclusively on patterns for delivering vocational agriculture and home economics programs. Therefore, it became evident the literature review would have to focus on delivery patterns that were providing any type of vocational education program if this phase of the study was to have value.

The first section of this chapter centers on the comprehensive high school, a school in which vocational and academic subjects are taught and administered within one school district. The second section of the chapter focuses on the cooperative pattern. This pattern received endorsement from a number of sources as a means for rural schools to provide vocational programs. The cooperative pattern involves two or more schools cooperating in terms of economic, administrative, teaching, and student resources. There are two variations within the cooperative pattern. One involves a formally organized secondary vocational center with a separate administrative staff. Section three presents a review of the other variation of the cooperative pattern which involves two or more schools cooperating in terms of economic, teaching, and student resources without a separate administrative team. This variation has been identified as a noncenter cooperative pattern largely because it functions cooperatively but without a formally organized administrative staff. It functions primarily on the basis of an informal arrangement between schools. The fourth section reviews the use of mobile facilities as a means of delivering vocational education programs to small rural schools. It was evident this pattern would fit in a cooperative mode in either a center or noncenter organization. The fifth section of this chapter reviews a residential school pattern. These five patterns reflect various means that schools have used to deliver vocational programs to students in small rural schools. Each section reflects a review of at least one research investigation that has been conducted on that particular pattern.

Comprehensive High School Patterns

The aim of the comprehensive high school is to achieve a compatible and effectively balanced program including general college preparatory and vocational education courses. In the comprehensive rural high school, the traditional vocational programs have been agriculture and home economics education. Because of geographic location, economic imbalances, and social prejudices, many of the American rural schools have maintained only these two vocational programs.

Densley (1969) reported that the National Advisory Council on Vocational Education (1968) stated that, in general, the curricula of the public schools had not been sufficiently comprehensive to meet the needs of all students. In an effort to better educate rural vocational students, many schools instituted new vocational programs or curricula within comprehensive schools during the 1970s.

In this first section, three research efforts, which focused on the comprehensive high school pattern as a vehicle for bringing vocational programs to students in rural areas, are reviewed. These research efforts were reviewed utilizing the input and outcome factors identified in Chapter II as a framework. The research reports were centered on Paola, Kansas; Kimball, Nebraska; and Whiteville, North Carolina.

Program Inputs

Input Factors

•Curriculum: According to Agan (1968), inservice training for staff was used to write a course-of-study manual for a new vocational curriculum for Paola High School, Paola, Kansas. An existing limited program was expanded through an effort to develop and organize a coordinated program of vocational education which included occupational information, selection, and preparation in secondary schools. Specifically, a course for juniors, "Commonalities of Occupations," was developed. A second course, "Experiences in Occupations," was developed for seniors, and included actual work experience. Previous Paola High School vocational program offerings were Agriculture, Business Education, Home Economics, and Industrial Arts.

The Kimball, Nebraska, Occupational Education Project (1974) developed new curriculum for K-12 to prevent repetition of material. An elementary career opportunity curriculum, "hands-on" occupational experiences for grades 7-9, an expanded cooperative education program for grades 11 and 12, and an intensive job training component to develop skills for grades 10 through adult were developed. Four inservice sessions were held to write the 125 units and introduce them to the remainder of the staff. Curriculum materials entitled "World of Construction" and "World of Work" were used in the Industrial Arts program.

An existing vocational program of Home Economics and Agriculture was expanded at Nakina High School, Whiteville, North Carolina. Cartret (1973) reported workshops were used to write 14 minicourses for Nakina High School. The new courses were recommended for the regular occupational program.

•Size: The new program in Paola found a high percentage (50 percent) of juniors remaining in the program as seniors.

The Kimball, Nebraska, vocational program developed from only a Home Economics and Agriculture to a complete kindergarten-through-twelfth-grade career occupational experience program.

Minicourses in Nakina High School were available to vocational students and study hall students.

•Travel: Students in the Paola, Kimball, and Nakina cooperative education programs were required to travel from school to job.

•Facilities: The vocational programs in Paola, Kimball, and Nakina were offered in comprehensive high schools within existing facilities. To supplement the new curriculum, career education centers were formed in the Kimball school libraries. The Nakina project also developed an occupational library.

•Students: The students served by the vocational program of Paola High School were juniors and seniors.

The Kimball project served grades 9-12 primarily.

Eleventh and twelfth graders took part in the Nakina project.

•Administration: No references were made specifically to the administrative staff in any of the schools. The only information on the size of the administrative staff for the three reported comprehensive high school projects was one principal for Nakina High School.

•Teaching staff: Individual and team teaching techniques were used in the Paola High School program. The existing vocational staff was used as team teachers in the "Commonalities of Occupations" course.

No information regarding the teaching staff at the Kimball school was reported.

The Nakina High School project provided planning time for teachers as part of their regular duties. Field trips to observe local industry were available to staff. One extra teacher position was created as a resource position at teacher request.

•Cost: No information regarding cost was available for any of the three programs in comprehensive high schools.

•Schedules: Paola High School juniors were scheduled into vocational education classes one hour per day. Class time was allotted for observation of various occupations and in-depth study. Seniors in the program were released from school two to three hours per day to work at jobs in the community as a means of exploring various occupations.

No schedule was given for the Kimball project.

The vocational education program at Nakina was available to students one or more periods each day.

Outcome Factors

•Student: Paola High School students reflected attitude changes which attributed higher status to vocational education. Future plans of Paola High School students found 85 percent planning to continue working for the same employers, 35 percent enrolling in college, and 26 percent planning to attend a trade school.

Skills development was measured by student pretesting and posttesting in the Kimball project. No information was available on future plans and placement for the Kimball project enrollees.

Nakina students showed increased interest in vocational education following the inception of the new curriculum. The year after instigating the new curriculum, 50 percent of the Nakina graduates planned to continue their education.

•Community: Business people who worked with the Paola High School program were reported as unanimous in their support. Work stations were provided by them and they benefited by having a pool of trained personnel.

Visiting classrooms and allowing tours of businesses enabled business leaders to become knowledgeable of the Kimball program. Many businesses were involved in providing jobs for students in the cooperative education program.

School Inputs

Input Factors

•Curriculum: The Kimball program developed a comprehensive guidance and counseling service to supplement the new vocational curriculum. A community resource questionnaire was also developed.

The Nakina program sought to integrate the vocational education program into the existing total school curriculum by making it available during study halls to students other than vocational students.

•Size: The Paola (Kansas) High School program served one high school of 300 students.

Kimball (Nebraska) High School enrolled 350 students, grades 9-12. They reported a district population of 3,500 with a school-age population of 1,115.

Grades 9-12 were enrolled in the Nakina (Whiteville, North Carolina) High School, with 262 students, 12 teachers, one librarian, and one principal.

•Facilities: The three programs reviewed were all based in senior high schools. Further information regarding facilities of the three comprehensive high schools was not reported.

•Administration: The only available information on the size of the administrative staff for the three reported comprehensive high school projects was a report that one principal was involved at Nakina High School.

•Teaching staff: Inservice workshops were held in all three high schools to develop and introduce new vocational curricula. The Kimball project encouraged all existing staff to participate.

•Other programs available: All three schools were comprehensive high schools with various academic courses available.

Outcome Factors

•Community: Community outcomes in terms of increased knowledge of the schools, more trained personnel available, and better community-school relationships were the only outcomes reported.

Community Inputs

Input Factors

•Size: The city of Paola had a 1970 population of 4,622, down 3.4 percent from 1960.

Kimball had a 1970 population of 3,680, down 16.1 percent from 1960.

Whiteville had a 1970 population of 4,195, down 10.4 percent from 1960.

•Geographical location: Paola is located in the center of Miami County in extreme east-central Kansas.

Kimball is centrally located in Kimball County, which is in the southwestern corner of Nebraska.

Whiteville is located in south-central Columbus County, in south-central North Carolina.

•Culture-racial: The 1970 Census Report for Paola indicated 5.8 percent of the population as Black and others.

The Kimball population was identified as 0.02 percent Black.

Whiteville was listed as 23.6 percent Black.

•Socioeconomic: Paola was primarily an agricultural community. In the 1970 Census, the number of people 18-64 years of age was 48.5 percent of the population; those 65 years and older represented 21.1 percent. The number of households was 1,522. The median family income was $9,128. There were 4.8 percent of the families below the poverty level. The median school years completed for those 25 years and older was 12.2.

Kimball was also an agricultural community.

Nakina High School is located in a rural area. Of 136 families with students, 64 lived on full-time farms. The rest worked at carpentry or in nearby mills. Fifty-five percent of the people in the 1970 Census were between the ages of 18 and 64. Those 65 years and older made up 10.8 percent of the population. The number of households in 1970 numbered 1,345. Median family income that year was $8,348, with 12.9 percent of the families below the poverty level. The number of people enrolled in educational programs between the ages of 3 and 34 made up 57.1 percent of the population.

•Employment opportunities: The unemployment rate for Miami County, in which Paola, Kansas, is located, was 2.7 percent in 1970.

The Kimball, Nebraska, unemployment rate was listed as 2.6 percent in 1970.

Columbus County, North Carolina, unemployment rate was given as 4.5 percent.

Outcome Factors

•Students: Students in all three reviewed projects gained an understanding of local businesses and opportunities. In addition, students in cooperative education at Paola High School received actual on-the-job training and skill development through cooperative education programs with the community businesses.

•Community: The Paola project conducted a survey of employment conditions and opportunities in the county which acquainted the community with the school project. Employers were unanimous in their support of the vocational program through their experience with the cooperative education program. The local economy benefited by having 85 percent of trained students remain in their jobs. With 26 percent of the students planning to attend trade school, the community may gain future returns as well.

Comprehensive High School Pattern Summary

The three comprehensive high schools and their communities were similar in size with 250-350 students. The vocational education needs of students were addressed by expanding programs to a wide range of students and adding new features to existing programs. Additional teaching staff was not required in any of these schools. A resource person was the only additional personnel utilized. Teachers were provided time for curriculum development and further program expansion. No additional facilities were required. The local businessmen provided specialized facilities required. The cooperative effort between the school and the community appeared to foster support from the community. No special administrative staff was added to monitor the program. Travel only involved students going to work at various cooperative education jobs. The communities experienced a population decline. The Whiteville population had a substantial number of minority students.

Cooperative Pattern

Centers

Oaklief (1971) viewed one of the major organizational approaches to providing occupational training as the emergence of the area regional vocational technical schools. Griessman and Densley (1969) described the regional centers as a viable method of providing program improvement for rural schools with inadequate resources. Knebel (1963) reported that United States Office of Education information indicated that nearly all states have area vocational schools. Characteristics of these schools are: (1) reduced costs for construction, operating, and administration; (2) broadened opportunities for rural growth; (3) extended programs for adults; (4) wider range of offerings; and (5) better teachers, facilities, and equipment.

Detamore (1972) described the Multi-County Center Concept serving sparsely populated areas of Appalachia with vocational education. Each county's share of expenses was based on its enrollment at the center.

The St. Landry Parish School Board, Opelousas, Louisiana, (1972) reported using the center concept in renovating a former elementary school as a vocational center to provide occupational manipulative laboratory experiences for rural vocational students.

Cooperative Center Pattern

Thomas and Smith (1971) reported a project demonstrating the center concept as a means of making vocational education more accessible to persons in the schools surrounding the Roseau and Blue Earth areas of rural Minnesota.

Rosenfeld (1979) stated that consolidated vocational centers can be quite successful in rural areas with communities near to each other and with adequate roads.

The Opelousas, Louisiana, and Roseau and Blue Earth, Minnesota, studies represent the more complete studies available and are reviewed in the following section.

Program Inputs

Input Factors

•Curriculum: The St. Landry Parish School Board (1972) reported the establishment of a new vocational center to provide preoccupational education for rural students. The purpose of the project was to provide occupational manipulative laboratory experiences for vocational students. A curriculum steering committee determined the need for a central facility. This group became an administrative committee to implement plans for the facility. Courses in office occupations, electricity and electronics, mechanics, air conditioning and refrigeration, food service, construction, welding, and drafting were offered in the new center.

Thomas and Smith (1971) described two cooperative vocational center projects: Roseau, Minnesota, and Blue Earth, Minnesota. In Roseau, the center added four courses the first year and four the following year but did not eliminate the existing vocational courses of agriculture, home economics, business education, and industrial arts in the home schools. Courses in welding, carpentry, food service, machine shop, distributive education, personal services, and small engines were added. These were courses that the schools were not able to offer individually. A multioccupational cooperative program was offered, and a sequential skill program leading to the postsecondary level was provided. Thirty-one adult education courses were also offered for upgrading and training. A job exploration program was established for potential dropouts.

•Size: Twelve feeder schools utilized the St. Landry Parish Center. The building capacity was 350 students. In 1971-72, 289 students were enrolled. In 1972-73, 450 were enrolled. One hundred fifty-two students graduated the first year.

The Roseau Center served four secondary schools. The enrollment grew from 149 in 1969 to 297 in 1971. The member schools and participation are listed below.

Home School	Center Enrollment	Percentage of 11th and 12th Grade Students Enrolled in Center
Badger	8	18
Greenbush	16	15
Roseau	63	63
Warroad	6	6

Seven secondary schools were served by the Blue Earth Center. Student participation grew from 143 to 215 in two years. In 1970-71, the enrollment was 163. The 1971-72 enrollment was 215. The member schools and participation for 1970-71 are listed below.

Home School	Center Enrollment	Percent of Center Enrollment
Blue Earth	35	21.4
Bricelyn	11	6.8
East Chain	13	8.1
Elmore	22	13.5
Frost	11	6.8
Granada-Huntley	41	25.0
Winnebago	30	18.4
	163	100.0

•Travel: Students attending the 12 feeder schools traveled as far as 32 miles to reach the St. Landry Parish Center.

The Roseau Center served students located in schools from 18 to 33 minutes from the center.

Transportation time for students attending the Blue Earth Center ranged from 10 to 30 minutes.

•Facilities: The St. Landry Parish Center was established in an elementary school that had been closed and renovated.

The Roseau Center was housed in the Roseau High School.

The former Blue Earth Creamery was renovated as a center. The automotive program was established in a county fairground building.

•Students: Students served by the St. Landry Parish Center were juniors and seniors. A high percentage of the students were black and all exhibited a high mobility rate. Absenteeism and the dropout rate were high.

Eleventh and twelfth graders were served by the Roseau Center. These students were described as rural.

The Blue Earth Center served grades 9-12. These students were regarded as rural. Student input was solicited in developing the program.

•Prior education: Prior vocational education of the participating students in the Roseau project was limited to agriculture, home economics, business education, and industrial arts.

Students attending the Blue Earth Center had previously taken courses in home economics, business and office, and industrial arts.

•Administration: An administrative committee was the outgrowth of a curriculum committee for the St. Landry Parish project. This committee implemented the facilities planning. No information was available on the on-going administration of the center, or of the Roseau and Blue Earth Centers.

•Teaching: Inservice for staff was provided by the St. Landry Parish Center.

The Roseau Center report concluded that the center staff needed to work closely with member school staffs. The distributive education coordinator traveled from a member school to the center.

•Cost: The St. Landry Parish used Title I, III, and vocational funds for the disadvantaged to finance the new center.

Vocational funds for the disadvantaged provided $47,924, and state aid supplied $150,939 to the Roseau Center.

The cost of the Blue Earth Center was shared by member schools on a per-pupil basis. In addition, vocational funds for the disadvantaged amounting to $94,168 were used.

•Schedules: Students attending the St. Landry Parish Center attended their own school through lunch. They were then bused to the center for a half day of schooling.

Scheduling cooperation among the member schools allowed Blue Earth Center students to attend for three hours per day.

Outcome Factors

•Student: An objective of the St. Landry Parish Center was to equip students with a marketable skill before high school graduation. Other objectives were to prepare students for the job market, for entry to vocational-technical schools, to continue training in college, reduce the number of dropouts, reduce absenteeism, and develop good work habits and attitudes.

The Roseau Center offered a sequential skill program through high school to post-secondary. It was concluded that students improved and guidance testing and placement helped students with future plans.

Improved attendance was an attitude change noted by the Blue Earth Center. It also reported that, in 1969, 12 percent of its students were planning to attend vocational school.

•Community: During the planning stages, the St. Landry Parish project assessed local industry needs for preoccupational education. A state survey of new jobs to be trained for was also used. The result was the training of students for existing jobs in the community.

Serving as advisory committee members gave business people an opportunity to become knowledgeable about the Roseau Center program, and to aid in developing a curriculum.

The Blue Earth Center saw further need to coordinate its programs with manpower needs of the area.

School Inputs

Input Factors

•Curriculum: The St. Landry Parish, Roseau, and Blue Earth Centers were all formed to make vocational education more accessible to persons in rural areas. Courses were developed and offered that member schools could not support individually. Total school curriculum was not reported.

•Size: Total school size was not available for St. Landry Parish schools.

The 1970-71 enrollments for the four secondary schools participating in the Roseau Center were:

School	Total Enrolled Grades 11 & 12
Badger	43
Greenbush	105
Roseau	258
Warroad	105
Total	511

The 1970-71 enrollments for the seven secondary schools participating in the Blue Earth Center were:

School	Total Enrolled Grades 7 to 12
Blue Earth	675
Bricelyn	165
East Chain	136
Elmore	201
Frost	114
Granada-Huntley	305
Winnebago	327
Total	1923

•Students: A high percentage of the students attending the St. Landry Parish schools were rural and black. All students exhibited a high mobility rate. Absenteeism and the dropout rate were high.

The Roseau Center students were described as "rural."

The Blue Earth Center served grades 9 through 12. These students were regarded as rural.

Outcome Factors

No information was reported concerning student or community outcomes.

Community Inputs

Input Factors

•Size: The 1970 census lists the population of St. Landry Parish as 80,364, down 1.4 percent from 1960. It includes 932 square miles of land with 60.8 percent of it classified as rural.

Roseau County, in which all of the member schools of the Roseau Center are located, had a 1970 population of 11,569, down 4.8 percent from 1960.

All but one of the Blue Earth Center's member schools are located in Faribault County. The county's 1970 population was 20,896, down 11.8 percent from 1960.

•Geographical location: St. Landry Parish is found in eastcentral Louisiana.

Roseau County is located in the northwest corner of Minnesota.

Faribault County is centrally located on the southern border of Minnesota.

•Culture-racial: In Opelousas, site of the St. Landry Parish Center, 41.4 percent of the population was reported as Black in the 1970 census.

The population of Roseau County identified as Black is 0.8 percent.

•Socioeconomic: St. Landry Parish is characterized as rural. According to the 1970 census, 42.3 percent of the population of Opelousas was under the age of 18. Forty-two percent were 18 to 64 years old. Those 65 years and older made up 8.3 percent of the population. The number of households was 21,887, with a median family income of $4,919. Those families below poverty level were 38.3 percent. The unemployment rate was 7 percent. Median family income was $2,480 for St. Landry Parish, with a 7.5 percent unemployment rate.

Roseau County is rural. The 1970 population distribution was: under 18 years, 38.3 percent; 18-64, 48.7 percent; 65 and older, 13.0 percent. The number of households was 3,463. Median family income was $7,474 with 14.9 percent below the poverty level. The unemployment rate was 11.5 percent.

Faribault County is also rural. The 1970 population distribution was: under 18 years, 35.1 percent; 18-64, 49.3 percent; 65 years and older, 15.6 percent. The number of households was 6,713. Median family income was $7,671, with 13 percent below poverty level. The unemployment rate was 5.3 percent.

•Employment opportunities: The St. Landry Center project carried out a needs assessment of local industry for program planning purposes.

The Blue Earth County manpower needs were surveyed to determine local needs in planning the center program.

•Education opportunities: Both Minnesota centers offered programs for adults.

Outcome Factors

•Student outcomes: Students enrolled in the Blue Earth Center received on-the-job experience provided by local business people.

•Community outcomes: The St. Landry Parish Center involved local business persons as advisory committee members with direct input into the center's program. The business community benefited in the number of students trained for various jobs available.

Membership on an advisory committee also provided Roseau County residents with input into the Roseau Center. In addition, the adult courses provided a trained pool of personnel.

The Blue Earth County community also became involved in the center project through advisory committees and adult classes. In addition, business and industry provided training stations for student on-the-job experiences.

Cooperative Center Pattern Summary

Curriculum expansion in the center programs were developed around specific occupational areas for upper level high school students. Adult programs also expanded the vocational course offerings.

Center enrollments ranged from 149-450 students. The number of schools involved ranged from four to 12.

Students traveled up to one-half hour (one way) per day to the center. Students remained at the center from two hours to a half day.

The center was located in separate facilities in two locations and in one situation it was within the local high school.

Two centers served eleventh and twelfth grade students; one served ninth through twelfth grades.

In one center, administrative tasks were at least partially handled by a committee.

Vocational funds for the disadvantaged were used in all three sites.

An emphasis on dropout and absenteeism reduction was evident in the center reports. Training for specific skills was an apparent priority in the center programs.

The potential number of students available to enroll in center vocational programs was larger than those available for vocational programs in the comprehensive high schools.

The Louisiana situation had a substantial minority population in its programs. It appears that these particular center sites had a higher population below the poverty level than the comprehensive high schools. Like the comprehensive high school programs, the center schools increased their population potential by serving adults.

The greatest distances reported between the cooperating schools and a center was 32 miles and, in terms of travel time, 33 minutes.

Cooperative Pattern

Cooperative Noncenter

The noncenter is a school-based approach to vocational education. It is a program of cooperation between schools, using existing administration and teaching staffs to coordinate a vocational program between the member schools. A separate budget, staff, organization, or curriculum is not identified in this pattern.

Many schools are limited in their programming by geographical isolation, school size, economic resources, and other related factors. Amberson (1968) recommended, among other things, sharing vocational education services, vocational education teachers, and vocational education counselors between schools.

Heesacker (1970) describes several efforts among rural schools to share vocational services. The Catskill Area School Study Council serving about 30 schools in upstate New York was one of the early shared-service rural vocational programs. The Rocky Mountain Area Project grew from a cooperative effort encompassing all of Colorado into a formal association of five state departments of education, including Utah, Colorado, Arizona, New Mexico, and Nevada. It is now called the Western States Small School Project. One of the shared services used by some of these states as a resource is an amplified telephone system. This service is also used by the Rural Supplementary Education Center at Stamford, New York. The Heart-of-Georgia-Shared-Services-Project at Eastman has provided a director of pupil personnel services to work with 37 services in seven school districts.

The following review of a study by Barnes (1967) of a New Mexico project is an example of cooperation between two small rural schools that could not support a vocational program alone. In this study, a distributive education teacher was shared by two high schools in Dexter and Hagerman,

New Mexico. The investigators could find only one research study to serve as an example for this pattern. Nonetheless, it appeared to be a distinct and viable pattern.

Program Inputs

Input Factors

•Curriculum: The New Mexico project utilized a mobile teacher to offer distributive education to two rural schools that could not support a program alone. The vocational offerings which existed in the school included home economics, auto mechanics, shop, agriculture, and office education. Classroom instruction and local and extended field trips were provided.

•Size: The New Mexico mobile teacher plan was a cooperative effort between the high schools of Dexter and Hagerman. The program involved the services of one instructor to teach two classes at each school.

•Travel: The schools of Dexter and Hagerman are eight miles apart, the distance the distributive education teacher was required to travel.

•Facilities: The mobile teacher program of Dexter and Hagerman used existing vocational facilities of each school. Field trips were a means of extending these facilities.

•Students: The New Mexico mobile teacher program attempted to identify all potential dropouts enrolled in the program. All students in the program were identified as rural.

•Teaching staff: One distributive education instructor taught two classes at each of the two schools in the New Mexico plan.

Outcome Factors

•Student outcomes: The New Mexico mobile teacher plan reported that students' average grades and attendance improved over the previous year. All previously identified potential school leavers in the program remained in school. Students also showed improved attitudes toward teachers, administration, and peers. Of all students enrolled in the New Mexico program, one-third were college bound.

•Community outcomes: Business people who worked with the New Mexico distributive program and provided resources for field trips gained a better understanding of the school's vocational programs. Community and business people became partners in the educational process.

School Inputs

Input Factors

•Size: Dexter, New Mexico, school enrollees numbered 750, with 300 of these in high school. The Hagerman, New Mexico, enrollment was 600.

Outcome Factors

•Student outcomes: The students involved in New Mexico were reported to show improved attitudes toward teachers, administration, and peers.

•Community outcomes: The report concluded that community members involved in school boards and advisory committees became more knowledgeable about the total school program, as well as the vocational program.

Community Inputs

Input Factors

•Size: Dexter, New Mexico, according to the 1970 Census, had a township population of 1,803. Hagerman, New Mexico, had a 1970 population of 2,121.

•Geographical location: Dexter and Hagerman are located in Chaves County, in the southeastern part of New Mexico.

•Culture-racial: Dexter's population was listed as 1,803 by the 1970 Census. Eight percent were listed as non-white. Hagerman's population was 2,121 with 35 percent given as non-white.

•Socioeconomic: Only Chaves County figures were available in the Census report. Median family income was $7,212, with 20.4 percent below poverty level. The median school years completed for the rural population of Chaves County was 11.3.

•Mobility: Many of the noncollege youth of Dexter and Hagerman must leave home to find jobs. Population loss in this study was also attributed in part to improved farming technology, requiring fewer farmworkers.

•Employment opportunities: The New Mexico study reported jobs as limited due to the agricultural nature of the area.

Outcome Factors

•Community outcomes: The research report concluded that community members involved in school boards and advisory committees became more knowledgeable about the total school program, as well as the vocational program.

Cooperative Pattern

Cooperative Mobile Facilities

Access remains a problem in rural areas. Sher (1979) suggested that in very remote or isolated rural areas, there are children who want and could profit from vocational education for whom programs are not available.

Mobile or relocatable units are an innovative solution to the distance-cost problem faced by rural schools. Griesmann and Densley (1969) stated that in the past, vocational educators have experimented with mobile facilities primarily to teach entry-level skills. Wheeler reviewed more than 185 sources and reported that 36 states were using the mobile concept (Oaklief, 1971).

Heesacker (1970) reported that the Coteau Hills Resource Center at Ellendale, North Dakota, serves 143 schools in 53 districts over an area of 13,000 square miles with courses in power mechanics and basic electronics conducted in two specially equipped mobile units.

The Kansas communities of Iola, Humboldt, and Marmaton Valley are served by three trailer-classrooms that are rotated among the three school districts (1977).

Drenkhahn (1976) reported that nine mobile units serve nine schools in eight districts in an effort to bring vocational education to sparsely populated northwestern South Dakota. The pattern of the South Dakota project as reported by Drenkhahn is reviewed in the following section.

Program Inputs

Input Factors

•Curriculum: Drenkhahn (1976) reports that previous to the utilization of mobile units in northwestern South Dakota, few or no vocational education courses had been offered by the nine schools who formed the Northwest Area Schools Multidistrict. None had a comprehensive program in

vocational education. The first three mobile units built in 1973-74 offered classes in general metals, building trades, and electricity/electronics. Three more units were added in 1974-75 offering agriculture technology I, quantity food occupations, and auto mechanics. The last three units were added in 1975-76, offering distributive education, health occupations, and agriculture technology II.

•Size: The counties of Harding, Perkins, Corson, Dewey, Ziebach, and parts of Meade, involving nine schools and eight school districts, were organized into a multidistrict to bring vocational education to the sparsely populated areas they served. The size of the South Dakota mobile plan is given in Table 1.

Table 1. Number of students enrolled as prevocational and vocational education students in 1975-76 school year and total enrollment in grades 9-12.

School Location	Prevocational & Vocational Enrollments in Mobile Unit Courses	Total School Enrollment Grades 9-12
Timber Lake	82	191
McLaughlin	50	193
McIntosh	46	152
Isabel	50	58
Dupree	53	89
Faith	40	125
Bison	36	117
Lemmon	67	286
Buffalo	72	103

•Travel: The area included in the South Dakota multidistrict mobile plan covers approximately 15,409 square miles, or one-fifth of the land area of South Dakota. The mobile units are assigned one per school per semester on a rotating basis. They are relocated by use of a truck-tractor purchased by the multidistrict board.

•Facilities: The first three mobile trailer units ordered for the South Dakota Multidistrict were 12' by 60'. The next six were 14' by 60'. All were ordered fully self-contained and adapted to specific program offerings.

•Students: The students enrolled in the South Dakota mobile plan were classified as rural. Twenty percent of the population in the eight participating school districts was Native American.

•Prior education: Drenkhahn reports that previous to the utilization of mobile units in northwestern South Dakota, few or no vocational education courses had been offered by the nine schools who formed the Northwest Area Schools Multidistrict. None had a comprehensive program in vocational education.

•Administration: The South Dakota multidistrict was governed by an eight-member board of directors, chosen by the school boards of each of the participating districts from their own membership.

•Teaching staff: Teachers assigned to the South Dakota mobile plan were hired and paid by the multidistrict board. The board also provided a travel allowance to defray costs whenever the units were relocated. Since many of these instructors also taught adult classes, they were excused from extracurricular responsibilities. Teachers were responsible for their own custodial work.

•Cost: Federal, state, and local sources financed the South Dakota multidistrict mobile plan. The 1975-76 budget was given as $290,235; this included the cost of three mobile units.

•Schedules: Course scheduling of the mobile units of the South Dakota plan was adapted by the administration in each of the schools. The mobile units are assigned one per school per semester on a rotating basis.

Outcome Factors

•Student outcomes: In the South Dakota program, statements from superintendents and students indicate growth in skills and a more positive attitude toward school and vocational education. Furthermore, some students were able to use the experience as a means of identifying areas of interest among the vocational offerings.

•Community outcomes: Community members serving on the South Dakota multidistrict board and advisory committee gained a working knowledge of the mobile program.

Community and business people became partners in the educational process of students in the South Dakota program.

School Inputs

Input Factors

•Size: The nine schools involved in the South Dakota multidistrict had 1,335 students enrolled in grades 9-12 and 4,000 students in grades K-12.

•Students: The students enrolled in the South Dakota mobile plan were classified as rural. The eight participating school districts had a population of 20 percent Native American.

Outcome Factors

•Community outcomes: The awareness of programs available to students by community members involved in school boards and advisory committees was about the only community outcome suggested in the report.

Community Inputs

Input Factors

•Size: Northwestern South Dakota is sparsely populated. The eight counties organized into the multidistrict plan cover approximately 15,049 square miles with a population of 18,013 reported in the 1970 Census.

•Geographical location: The South Dakota multidistrict is located in the northwestern corner of South Dakota.

•Culture-racial: Using information from the 1970 Census, the South Dakota multidistrict report stated that the eight participating school districts had a population of which 20 percent were Native Americans.

•Socioeconomic: The northwest multidistrict area of South Dakota was described as sparsely populated and rural. Although all of Meade County was not included in the multidistrict plan, the total number of households in the six participating counties was 9,347. The median family income was $6,322. The number of unemployed ranged from 2.0 percent in Perkins County to 10.3 percent in Ziebach County.

•Mobility: No information was given regarding the mobility of the population in the South Dakota study.

•Employment opportunities: The South Dakota study reported a variety of adult classes offered through the mobile plan program.

Outcome Factors

•Student outcomes: No specific information was given regarding student outcomes from community inputs.

•Community outcomes: Many adults were able to take advantage of the adult programs offered by the mobile plan project in South Dakota. In a sparsely populated area, adult programs created social as well as economic outcomes.

Cooperative Mobile Facilities Pattern Summary

The mobile pattern reported was located in a sparsely populated area and served an expansive land area. Programs offered students focused on specific occupational areas. Community and business facilities were utilized in these programs. Like the centers, a larger number of students were available for enrollment in the mobile unit program than was the case for the comprehensive high schools.

Residential Pattern

A residential school such as the Mayo State Vocational-Technical School, Paintsville, Kentucky, is an effort to overcome the lack of mobility and remote location problems. Ramey (1967) stated that a strength of the residential school pattern was that students were able to secure living conditions at the least possible expense while engaging in vocational education. Oaklief (1971) suggested that the residential school fits a wide geographic area that is too sparsely populated to support a diverse vocational program. Warmbrod (1970) described similar programs at Haskell Institute; University of Southern Florida; New Haven, Connecticut; North Georgia Technical/Vocational School; and the Southern Ohio Manpower and Technical Training Center at Jackson, Ohio.

The Mayo State Vocational-Technical School, Paintsville, Kentucky, exemplified a residential vocational school. The report by Ramey (1967) and the nature of the plan seemed to lend themselves to a descriptive review rather than a review of the variables.

The Mayo School made it possible for all people, regardless of their status in life, economic condition, or vocational background, to have the opportunity to learn a trade. All students were admitted according to date of application. The only entrance requirement was the ability to read. High school graduation was needed for technical courses. No previous records of students were reviewed as a point of reference. Standardized tests were used only if students were having difficulty in the shop or in class. All students took mathematics, science, and related subjects until they met trade level regulations. They were grouped by trade, not by ability. Students worked at their own rate. The program was run as a residential school where students could obtain a room at the least possible expense.

Thirteen counties sent high school students to study a trade during their junior and senior years. The students attended one of seven centers for three hours a day. They were able to complete one-half of a two-year vocational course while still in high school. After graduation, these students could continue the study of their trade by transferring to the Mayo School at Paintsville. The Mayo School has a 95-percent placement record.

Students using the Mayo School came from rural areas in which coal mining was declining and the farms were poor. The rate of unemployment was high in these communities. Students in these areas viewed education as of little value, and the dropout rate was high.

Ramey (1967) reported that 1,200 students were enrolled in the seven secondary centers, and 600 in the residential program at Mayo, with 911 on the waiting list. The tuition was set at $4 per month.

Residential Pattern Summary

The base from which potential students are drawn to a residential school is the largest of all patterns reviewed. It could serve the student population in a region or an entire state. No daily travel is involved in this pattern. Facilities appear to be self-contained. Student selection occurs on a "first come, first served" basis.

CHAPTER IV

CONCEPTUAL MODELS RESULTING FROM AN ANALYSIS OF THE DATA

In reviewing the literature, it becomes apparent that each community and school presents a unique or particular set of circumstances regarding the question of how to best deliver vocational education. Rosenfeld (1979) suggested that since it is doubtful that any one community is indeed typical, these peculiarities warrant examination.

Sher (1979) stated that much of what is unique about rural schools and school districts defies quantitative analysis or statistical description. The paucity of quantitative data revealed in the literature would tend to support his position. In the initial categorizing of information resulting from this literature review, certain approaches emerged which were identifiable. Again, one is reminded that a major impetus for this study emanated from a growing concern among school districts for providing an adequate curriculum for small student populations. The threat of school enrollments becoming smaller in the immediate future causes considerable anxiety in small rural schools and communities. The importance of the school in a rural community and the lack of research data on modes of delivering vocational programs were all factors which led to the development of the school-based approach highlighted in this review. A similar analysis of home-based and work-based approaches should be carried out in the future.

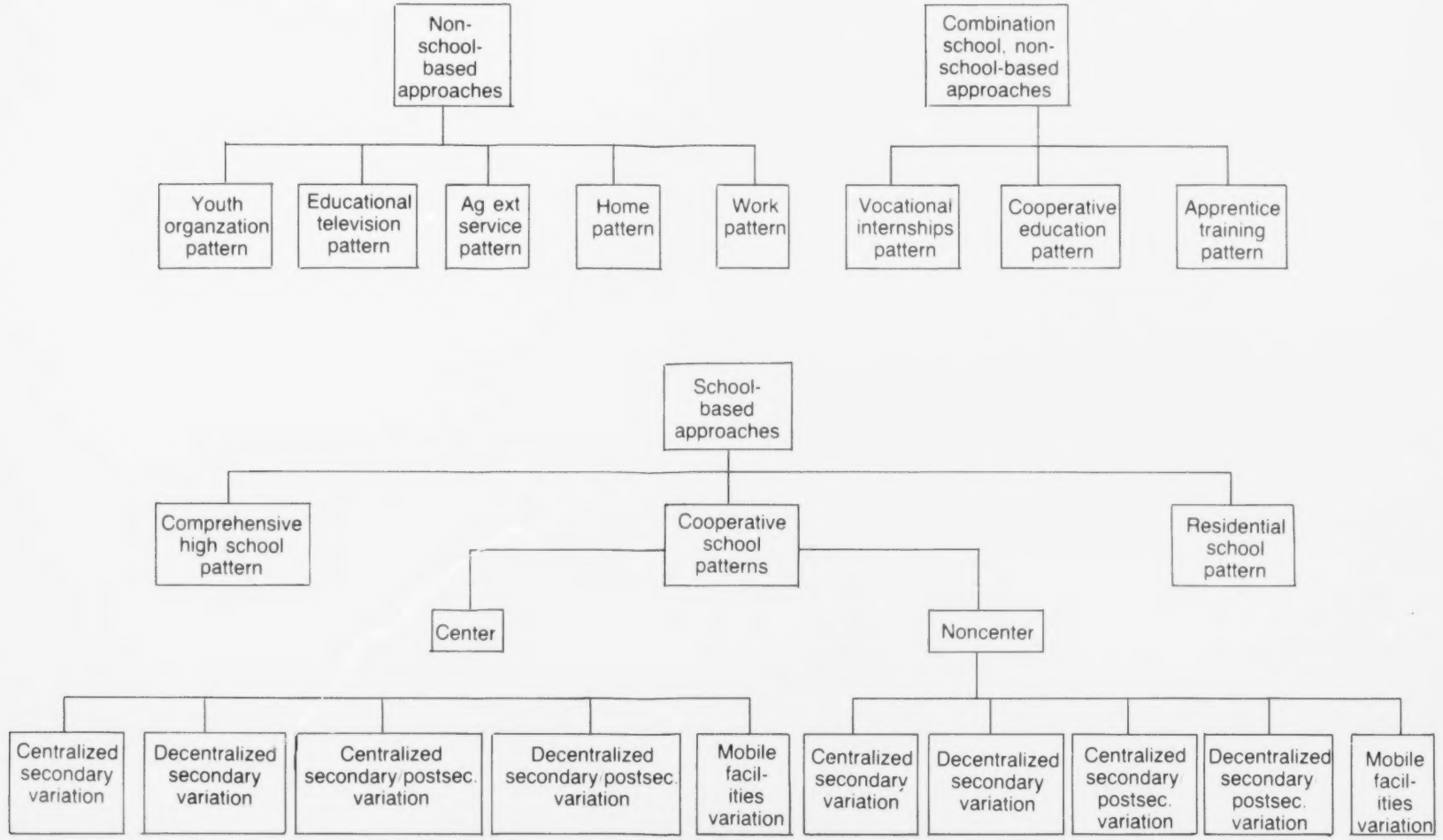
With the approaches discovered in the literature review, it became apparent to the researchers that a revision of the conceptual model presented in Chapter II, Figure 1, was necessary to more usefully serve an analysis of what was actually taking place in small rural schools. This model is presented in Figure 3. The three basic approaches identified in either the literature review or as described by the project advisory committee are: (1) the non-school-based approach, (2) the combination school/non-school-based approach, and (3) the school-based approach.

The non-school-based approach included the youth organizations, educational television or a wide range of informal educational patterns. The combination school/non-school-based approach included such patterns as cooperative education, vocational internships, and apprenticeship training programs. These patterns could also be viewed as school-based approaches. However, they appeared to emphasize the work setting to a larger extent than did those identified as school-based only. Three school-based approaches identifiable in the literature were (1) the comprehensive high school pattern, characterized by vocational offerings along with academic offerings within the standard high school program; (2) the residential school pattern, which included vocational and academic offerings in a program as well as live-in accommodations for students; and (3) the cooperative pattern which involved two or more schools joining together to provide educational experiences for students.

The school-based approach identified as the cooperative pattern was further categorized in the conceptual model into center and noncenter subpatterns. The primary basis for categorization was the degree of structure involved in the cooperative programming by the participating schools. Centers were those cooperative patterns that involved a formally structured center staff, an identified center budget, and an identified program of center course offerings. The center may or may not have included separate facilities and equipment for conducting its programs. The noncenter category involved no formal structure, as in an organized center, and is simply a program of cooperation between schools using existing administrative and teaching staff members to coordinate programs between the schools involved. No separate staff, budget, organization, or curriculum are identified separate from those of the cooperating schools. The center and noncenter subpatterns were each further categorized, in the conceptual model, into five variations.

Descriptions are presented in the following section as a means of clarifying these variations located under the center and noncenter subpatterns. Each variation is described in terms of an organizational description and the consequences that may emerge from the variation. The organizational description was generated from the literature review. The consequences of the variation were formulated from the literature review, from knowledge acquired from discussing this issue with various educators at the local and state levels, and from preliminary observations of the cooperative patterns. The descriptions are tentative and represent hypothesis more than conclusions. They were developed as a guide for further inquiry.

Figure 3. Conceptual model of approaches, patterns and variations for delivering vocational education.



Center Patterns

Centralized Secondary Variation (Center Pattern)

Organizational Description: The centralized secondary variation refers to a secondary level vocational center, usually serving grades 11-12. There is a center governance structure, an organized program of center courses, a center administrative staff, a center teaching staff, a center budget, learning resources and equipment attached to the center, and a single facility purchased or rented by the center for conducting the various programs.

The distinguishing features of the centralized secondary pattern variation are its center organizational structure and its single facility. Conditions necessary for this pattern variation to exist include the ability and willingness of participating schools to provide governance and financial resources to the center. A formal, legal agreement is necessary to define the rights of participating schools to use the center and the terms under which such use will occur. The center keeps its own financial records. The center is subject to financial audit.

The state recognizes the center as a legal organization and approves its operation, making it eligible for various types of reimbursement. A single facility which can accommodate all programs must be available. Networks of communication must exist between school districts in order that needs of students and offerings can be coordinated; such networks may exist via the governance body, citizen advisory groups, and among the superintendents and principals of participating schools. Participating schools must perceive that they benefit from cooperating with each other in this manner. They must also be willing to adjust their schedules to accommodate the center schedule of courses. Transportation for moving students to the single facility must be available.

Consequences of Variation: A consequence of this pattern variation is likely to be expansion of vocational curriculum offerings available to students. While it would seem that a center would automatically expand the number of vocational offerings available to rural students, this would be true only if the total number of vocational offerings available to students (considering both the number of center and home school vocational offerings) is increased. The degree to which vocational center offerings represent a real expansion of opportunity to enroll in a greater number of different offerings would include the size of the curriculum in the students' home school, the extent to which home school schedules can provide home school offerings to students at times students are not at the center, and the amount of travel time required to transport students between their home school and the center.

One consequence of center offerings relative to curriculum available to students is likely to be change in the curriculum available. If the center programs represent a real expansion of offerings, that is one kind of change. Another kind of change possible is that, even if center offerings do not represent a real expansion of offerings available to students, they would, in most cases, mean that a different set of offerings would be available. This kind of change would occur when a school district drops some home school offerings in lieu of offerings in the center. Another possible consequence is no change in curriculum available but change in location of program and in structure through which programs are offered. This kind of change would occur when a program offered by a school district is moved to become a part of center offerings. The program is still available to students in the school, but students may need to be transported to the new location. The key consequence of this change is that a greater number of students from several districts may have access to the program when it is a part of the center structure.

Consequences of the vocational center pattern to a school may be lower dropout rates due to increased student interest in school because of the vocational center offerings, resentment of elective courses on the part of home school teachers who may fear enrollment drops in their classes as a result of student participation in the center, and difficulty in maintaining student organizations and school activities because students are away from school during school hours. Consequences of the vocational center pattern to a community may be increased retention of youth in the community (and possibly increased support for schools from business and industry) if vocational skills and understandings taught in the center are usable within the community or increased student mobility out of the community if these skills and understandings are not usable within the community (and possibly decreased community support for schools).

A consequence of the centralized center variation may be that transportation requirements may be quite unequal for participating school districts. This would be especially true when the center is located in one of the participating communities and when the location of the center facility is not

central among the participating communities. In addition, students may select or avoid enrollment in center or home school programs on the basis of transportation requirements.

Decentralized Secondary Variation (Center Pattern)

Organizational Description: The decentralized secondary variation, like the centralized secondary variation, refers to a secondary-level vocational center. As with the centralized secondary variation, there is a center governance structure, an organized program of courses, an administrative staff, a teaching staff, a budget, and learning resources and equipment attached to the center. However, multiple facilities, rather than a single facility, are used for housing the programs. This is the primary difference between centralized and decentralized variations. Center vocational courses are offered in these multiple facilities, which are sometimes part of the existing school facilities in participating school districts. In some instances, teachers travel between schools; in others, the students travel; while in others, only materials may travel to the various schools. A more complex version of the decentralized secondary variation is a "satellite" structure where several groupings of adjacently located school districts offer a cluster of programs. These subgroups, each composed of a few school districts, are linked together in a center structure. The satellite structure may include, for example, six subgroups each composed of three school districts, making a total of 18 school districts in the center.

The distinguishing features of the decentralized secondary pattern variation are its central organization and its use of multiple facilities. Although facilities are not physically located together in this variation, they are held together organizationally by a central governance board, a teaching staff that is a part of the same organization, and their use by students from any of the participating school districts.

Conditions necessary for this cooperative pattern variation to exist include the ability to identify available and usable facilities in two or more sties. Other conditions are the same as those identified for the centralized center pattern variation.

Consequences of Variation: Consequences of this variation would be similar to the centralized variation in terms of possible curriculum expansion. However, in this variation, students may or may not be required to travel to another school site. Therefore, curriculum expansion may be the result of making existing programs in other cooperating schools available to students in each of the schools. Policy conflicts and scheduling problems could arise if students are moving between schools. However, the centralized administrative structure should facilitate mediation of these types of conflicts. Transportation requirements may also be unequal among participating schools.

Centralized Secondary/Postsecondary Variation (Center Pattern)

Organizational Description: The centralized secondary/postsecondary variation refers to a program designed for secondary-level students. It has a center governance body, a program of courses, an administrative staff, a teaching staff, a budget, and learning resources and equipment attached to the center. The main difference between this variation and the other center variations is that it utilizes postsecondary facilities and may use postsecondary teaching personnel. A necessary condition for this variation is the availability of a postsecondary institution in reasonably close proximity to the participating secondary schools. In a state like Minnesota, where numerous postsecondary vocational schools exist, the opportunity for the postsecondary pattern to exist is greater than in states where such institutions are few. Not only must postsecondary institutions be available, they must have space and teaching staff which can be devoted to secondary programs and must be able to work secondary programs into their total schedule of offerings. The centralized secondary/postsecondary variation is similar to the centralized secondary variation in its use of a single facility and its center organizational structures. Transportation of students from participating schools to the postsecondary school is also a requirement.

Consequences of Variation: Consequences of this variation are likely to be the same as the center variation regarding curriculum expansion and opportunity, dropout rates, attitudes of participating school students and faculties, student organization conflicts, scheduling, transportation problems and retention of youth in the community.

A unique consequence of this variation is that students may have a greater tendency to enroll in postsecondary vocational programs as a result of their opportunities for exposure to the

postsecondary institution and its programs than would be the case in variations which do not involve postsecondary institutions.

Further, this pattern could lead to the pull of students to the postsecondary school before they complete their secondary school education.

Decentralized Secondary/Postsecondary (Center Pattern)

Organizational Description: The decentralized secondary/postsecondary variation is very similar to the decentralized secondary variation. There is a center governance structure, an organized program of center courses, a center administrative staff, a center budget, and learning resources and equipment identified with the center. However, a key feature of the decentralized secondary/postsecondary variation is that at least one of the facility locations is a postsecondary institution and at least one facility is located in one of the participating school districts apart from the postsecondary institution.

As in the case of the decentralized secondary variation, facilities are not physically located together but are held together organizationally by the central governance board, staff structures, and operating policies.

Conditions necessary for this cooperative pattern variation to function include: the availability of a postsecondary institution located near the participating schools, the availability of additional facilities in at least one other location, transportation of students, communication networks, perception that cooperative arrangement is beneficial, and willingness to adjust home school schedules.

Consequences of Variation: Consequences of the decentralized secondary/postsecondary variation would be expansion of curriculum within the limits previously identified, possibly lower student dropout rates due to rejuvenated interest in school, potential resentment on the part of participating school elective subject faculties, and difficulty in maintaining vocational student organizations attached to the center. School district support for vocational programs and the outflow and retention of youth in the communities could increase or decrease depending on the number and type of programs offered and their quality.

Policy and scheduling conflicts are more likely to occur in this variation because not only are students traveling to programs in various school buildings, but also, two educational levels are involved. It might be expected that the more diversity in the nature of the educational institutions involved in a cooperative venture, the greater the likelihood of policy, schedule, and other types of conflict.

Transportation requirements may also be unequal among participating schools and may become a basis for course selection by students. Another possible consequence involves the type of institution in which a program is offered. Students may simply enroll or avoid a program due to the fact that it is located in a postsecondary institution or in a particular secondary school. As in the case of the centralized secondary/postsecondary variation, the tendency for students to enroll in postsecondary programs may be greater, both before and after, high school graduation.

Mobile Facilities (Center Pattern)

Organizational Description: The mobile facilities variation refers to a secondary-level program that utilizes mobile classroom and/or laboratory facilities adapted for various vocational programs. These facilities, which resemble trailer houses, can be moved between locations providing vocational courses.

The mobile variation of the center subpattern is similar in organizational structure to the other center variations in terms of governance, budget, legal agreements, and recognition and approval as a cooperative unit by the state. The mobile variation may involve a single trailer or multiple trailer facilities. The key characteristic in this variation is not whether there is one or several facilities which was the case for determining centralized or decentralized variations, but rather that the facilities are movable from one location to another.

Communication networks, or at least some aspects of communication, may be different in the mobile unit variation. While discussions among cooperating schools regarding curriculum and financing are essential in this variation, discussion regarding movement of the mobile units replaces discussions of student movement characteristic of the other variations. Because the mobile units can be located for a time on the premises of each participating school, communication between mobile unit teachers and participating school faculties and administrators is facilitated. Center teaching staff are identified with the mobile units in this variation.

Transportation of students is not required in this variation. Daily school schedules do not need adjusting, but quarterly or semester dates may need to be synchronized. Transportation factors would not enter into students' choice of program.

Special equipment, time, and personnel are required to move the mobile unit between participating schools.

Consequences of Variation: Consequences of the mobile center variation would likely be the same as for other center variations regarding dropout rates, attitudes of teachers with elective courses in the cooperating schools, and retention of young people in communities.

Student organizations will likely be as difficult to maintain as in other cooperative variations if the mobile units shift locations frequently. However, they may be easier to maintain if the units are in place for an entire school year.

Consequences of the mobile unit variation that differ from other center variations include equality of student transportation requirements for all participating school districts. Depending on how the program is staffed and financed, schools may bear unequal teacher travel costs.

Another consequence of this variation is that conflict in policies of participating schools may be minimal since the home school and the mobile unit together comprise a self-contained unit for the time the unit is in a district. When the unit moves to a different district, it can operate under the policies of that school's administration, so long as they do not conflict with policies of the center.

One further consequence of this variation is that program continuity may be a problem because a particular course may appear at a school once every two, three, or four years or whatever the rotation system requires.

Finally, program survival frequently depends on enrollment and it may be difficult to maintain adequate student numbers in every course as it comes to a particular school.

Noncenter Pattern

Centralized Secondary Variation (Noncenter Pattern)

Organizational Description: The centralized secondary variation refers to a program planned and conducted cooperatively by two or more high schools, serving any secondary grade levels. The administrative functions are performed by those already employed in each cooperating school district. The teaching functions may or may not be assumed by the present school staff. In this variation, the program is conducted at a specific school site. Students travel to the cooperating school for the specific vocational programs offered. Each cooperating school is assessed a share of the program costs.

Administrative functions are shared among participating school personnel. Teaching staff from participating schools may be assigned on a part- or full-time basis to the cooperatively offered vocational programs. However, new teaching staff may be brought in and the costs shared by the participating schools. No separate governance body, organizational structure, or financial structure is identified. Matters requiring local approval or decisionmaking are taken before the participating school boards by the respective school administrators. No separate financial records are kept apart from the participating schools' financial records. There is no separate vocational unit subject to financial audit but rather, financial records kept by each school concerning the vocational programs are subject to audit along with financial records of the school's other programs and activities.

Legal agreements such as contracts may be needed between participating schools to clarify responsibilities. However, these are not required to conform to state requirements and regulations beyond those attached to legally binding contracts. No state-level recognition or approval of any vocational unit is necessary beyond vocational program approval required for vocationally reimbursed programs in any single school district.

Communication networks between cooperating districts may be necessary but may be more limited and less formal than any of the center-based variations. For example, in the center variations, the primary communication vehicle between participating districts is likely to be the center administrator. A second important communication vehicle is the center board, usually composed of members of the participating schools. An illustration of the communication network in the center variation may be as follows:

Center administrator talks to center board members, participating school administrators, center teachers, and participating school board members to some extent.

Center board members talk to each other, their own school board members, their own school administrators, and their constituents.

Participating school administrators talk to each other, their own school boards, and teachers.

The center subpattern involves an additional "layer" of structure that is reflected in the communications network as well as in the organizational structure.

Fewer people are likely to be involved in the noncenter than in the center communication network. Participating school administrators are clearly "in charge" of programs and the teaching staff located in their schools. The center structure does not necessarily provide a central role for participating school administrators. The extent of their participation may be largely a function of their personal power or the administrative style of the center director.

Facilities which can accommodate the vocational programs and students from all participating schools must be available in one location. Participating schools must perceive a need for cooperation and they must perceive that they benefit from the cooperation. Schools must be willing to coordinate their schedules, transport students, and contribute financial resources to the programs.

Consequences of Variation: Consequences of the centralized secondary variation of the noncenter subpattern would be similar to those for centralized secondary centers regarding school dropout rates, attitudes of teaching staffs in participating schools, student organizations, transportation, curriculum, school district support, and retention and outflow of young people in or from the district.

Since there is no formal organizational structure attached to the vocational programs beyond the school in which the programs are located, there may be more flexibility in negotiating policy differences between participating schools. The school in which the programs are located may emerge as more powerful without an organizational structure to govern relative power of participating schools. Consequently, that school's policies may predominate when questions or conflict arise. There is no individual such as the center director or board to mediate conflict in this variation.

Decentralized Secondary Variation (Noncenter Pattern)

Organizational Description: The decentralized secondary variation refers to a program planned and conducted cooperatively by two or more high schools. Programs are located in two or more of the participating schools. Students generally travel to the cooperative school which offers the desired vocational programs. Each cooperating school shares in the program costs.

The noncenter decentralized secondary variation is similar to the centralized secondary noncenter variation in administrative functioning, governance, communication, and financial arrangements. Appropriate facilities must be available in the participating schools. Various types of programs may be located in two or more of the cooperating schools, or in every cooperating school. Participating schools must also perceive a need for benefits from their cooperation. Schools must be willing to adjust their schedules and transport students to the schools involved in the cooperative effort.

Consequences of Variation: Consequences would be similar to the centralized noncenter variation regarding curriculum, dropout rates, attitudes of participating school elective subject faculties, student organization and maintenance, school support by districts, and outflow and retention of students. Policy conflicts may be more likely to occur in this variation than in the centralized noncenter variation as a result of students traveling to, and programs being located in, a greater number of schools. A single participating school may be less likely to emerge as dominant. Transportation requirements may be unequal among participating schools.

Centralized Secondary/Postsecondary Variation (Noncenter Pattern)

Organizational Description: The centralized secondary/postsecondary variation refers to a secondary-level program in which cooperating schools utilize postsecondary-level facilities and instructional staff exclusively. This variation requires that a postsecondary institution with available facilities and staff is located near the participating schools. The secondary schools desiring to utilize the postsecondary programs must be able to fit into that institution's program and schedule. No organizational, governance, or financial structure is required beyond that already established within cooperating school districts. Legal agreements in the form of contracts between the participating school districts and the postsecondary institutions are likely to be needed. State recognition or approval of a secondary vocational unit is not required beyond the usual teacher licensure and program approval processes. Communication networks are, as with the other noncenter variations, primarily school administrator focused. Perceptions of need for cooperation and feelings that benefits are received from the cooperative effort among participating districts are necessary. Transportation of students is required between secondary schools and the postsecondary institution. Articulation among participating schools' schedules and the postsecondary institution's programs is likely to be important.

Consequences of Variation: Consequences emanating from the centralized secondary/postsecondary variation would be similar to those for the centralized secondary noncenter variation. An additional consequence of this variation, similar to the centralized secondary/postsecondary center variation, is the possibility that students from the cooperating secondary schools who participated in the vocational programs will be more likely to pursue additional education in the postsecondary institution with which they have become familiar.

Decentralized Secondary/Postsecondary Variation (Noncenter Pattern)

Organizational Description: The decentralized secondary/postsecondary noncenter variation refers to a secondary-level program in which two or more cooperating schools utilize programs and/or facilities in a postsecondary institution. However, these cooperating school districts also house one or more secondary vocational programs. Students travel to another cooperating school, the postsecondary institution, or may remain in their own school, depending on the program in which they are enrolled. Necessary conditions for this variation to function are the availability of secondary-level facilities in more than one location and a postsecondary institution near cooperating schools. In addition, the postsecondary institution must also have sufficient physical space available for secondary students.

As with other noncenter variations, no additional organizational structure is involved, and no separate governance unit or financial structures are involved.

Legal agreements between participating schools would be similar to those for other noncenter arrangements. No state approval or recognition as a cooperative unit is required.

As with other noncenter variations, communication networks between communities include primarily participating school administrators. In this case, the postsecondary administrators would also be included in such communication networks. A perceived need for and benefits from cooperation must be present among participating school districts. The transportation of students and the articulation of schedules among the participating schools is necessary for this variation to function.

Consequences of Variation: Consequences of this variation could be the expansion of curriculum within the limits of participating school budgets, staff member availability, and teaching resources in the participating secondary and postsecondary schools. This variation could also provide full employment for postsecondary staff members and full utilization of high-cost equipment.

Coordinating schedules without the benefit of a central administrative staff could be difficult.

Mobile Facilities Variation (Noncenter Pattern)

Organizational Description: The mobile facilities variations refers to a secondary-level program that utilizes mobile classrooms and/or laboratory facilities adapted for vocational programs. Noncenter mobile facilities may or may not have staff and budgets that go with the unit. In a noncenter mobile variation, staff and budget may be entirely supplied by the participating schools when the unit is located in the community. Some base level budget may need to be provided by pooled resources (e.g., maintenance and repairs on the trailers) from the participating schools. Generally, specific curriculum is identified with the mobile facility. In some instances, mobile facilities may be purchased by special state funds; in other cases, schools may purchase or rent these on a shared basis. In the noncenter variation of the mobile unit, trailers are simply jointly owned or rented by the participating schools and no center organizational structure is attached to the unit. Special governance and fiscal structures are not needed since these functions are taken care of by the existing governance and financial structures of participating schools. State approval of facilities may be required but no state recognition of a legal educational cooperative is involved. Legal agreements between schools would be necessary to describe the financial contribution of each school toward the purchase or rental cost, maintenance, and the rotation of the mobile units and the length of time the unit(s) would be scheduled in each community. Each school district must perceive that it benefits from the mobile unit variation.

As was pointed out in the discussion of the center mobile unit variation, the unique feature of this mobile unit variation is the transportability of the educational facilities, which eliminates the necessity for student travel. The mobile unit variation may require teacher transportation if the teacher stays with the unit as it circulates around the various districts.

The noncenter mobile variation may require articulation of participating school schedules if the mobile unit is located in two or more school districts within one academic year. If the unit remains in one school district for an entire school year, coordination of schedules may not be needed.

Consequence of Variation: Consequences associated with the noncenter mobile unit would likely be the same as for the center mobile unit variation regarding dropout rates, attitudes of elective subject matter, teachers, curriculum, school district support, retention or outflow of young people, student organizations, student and teacher travel requirements, and conflict in policies. Conflict in scheduling and policies may be less likely in the noncenter mobile variation than in the center mobile variation because the mobile unit could operate to a large extent under the policies of the school at which it is located. However, no governing person or body is available to resolve conflicts between schools.

Table 2 presents a summary of the preceding discussion of variations and the conditions required for each. It may be noted that for the necessary conditions listed vertically along the left side of the table, relatively few differences exist between variations within a subpattern (the greatest difference is evident in the mobile variation). Differences are more apparent, however, between the two subpatterns (i.e., centers and noncenters). Differences appear to be related to organizational structure and facilities.

A number of possible consequences of patterns and their variations were identified in the preceding discussion. As this research investigation examines these variations in actual practice, evaluating each pattern (center or noncenter) and variation against a list of possible criteria may provide a useful basis for analysis. The following criteria are suggested:

School dropout rates.
Attitudes of faculty in participating schools toward vocational programs.
Degree to which vocational student organizations are maintained.
Basis of vocational course selection by students.
Costs borne by school districts for vocational program.
Type of vocational curriculum offerings available to students.
Transportation requirements for vocational programs.
Attitudes toward school held by business, industry, parents, and the community in general.
Retention/outflow of young people in (or out of) the school districts.
Relationships between participating schools.

Table 2. Comparisons of necessary conditions for center and noncenter patterns.

	Center Patterns					Noncenter Patterns				
Necessary Conditions	Centralized Secondary	Decentralized Secondary	Centralized Secondary Postsecondary	Decentralized Secondary Postsecondary	Mobile Facilities	Centralized Secondary	Decentralized Secondary	Centralized Secondary Postsecondary	Decentralized Secondary Postsecondary	Mobile Facilities
Single facility	Yes	No	Yes	No	Yes/No	Yes	No	Yes	No	Yes/No
Multiple facilities	No	Yes	No	Yes	Yes/No	No	Yes	No	Yes	Yes/No
Identified governance body	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Exclusive administrative staff	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Teaching staff	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voc. unit subject to financial audit	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Legal agreement between schools	Yes	Yes	Yes	Yes	Yes	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Recognition & approval of unit by state	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Communication networks between schools	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Perceived need for cooperation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Perceived benefit from cooperation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transportation of students	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
Adjustment of schedules among participating schools	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

The Concept of Flow in Program Elements

A concept that emerges from the preceding analysis of the Conceptual Model II (Figure 3) is the concept of "flow" of program elements. "Flow" is defined as the movement of program elements between communities. Each delivery pattern exhibits a different flow of program elements. What elements flow and the direction in which they flow is a reflection of the delivery pattern.

Before discussing the flow concept in detail for each school-based pattern identified in the conceptual model, it is important to introduce two additional concepts. These are "community served" and "school district providing resources." The nature of the relationship between "community served" and the "school district providing resources," determines the amount and type of flow of program elements between communities which in turn reflects the type of delivery pattern exemplified.

The situation presented in Figure 4 is representative of the comprehensive high school in which one community is served by its own school, using its own resources. Even in this pattern, however, there is some flow of resources from sources or agencies outside the school district to the community served by the comprehensive high school. State and federal funds are an example of resources flowing in from sources or agencies outside the local district. In some schools, students are placed in work settings in businesses located in other school districts as a part of their vocational agriculture or home economics programs; consequently, there is a flow of school district resources from a district served by the comprehensive high school to another district. There is also the potential flow of student outcomes when a student served by the comprehensive high school becomes

Figure 4. Complete overlap of community served and school district providing resources.

employed or lives in a neighboring district. However, these kinds of flow occur for most types of programs including non-school-based and combination school- and non-school-based approaches in most locations. Thus, they will not be considered further as flows which distinguish one type of delivery pattern from another.

A different situation exists when two or more schools cooperate. All cooperating schools provide resources and receive services from the cooperative enterprise. In this situation, however, a community provides resources and not only that community is served but other communities are served also. Even though resource contributions and services received for a single community may be proportional, there is no longer complete overlap between the providers of resources and the receivers of services.

A number of diagrams could be drawn to illustrate varying examples of proportional sharing in cooperative patterns. Figures 5a and 5b illustrate a sample case of three school districts involved in a cooperative variation. The size of the circles illustrate varying amounts of resource contributions and students served by the various districts in a cooperative unit.

Figure 5a. Input: Three school districts' resource contributions (direct and in-kind) as a proportion of total resources contributed to the cooperative unit.

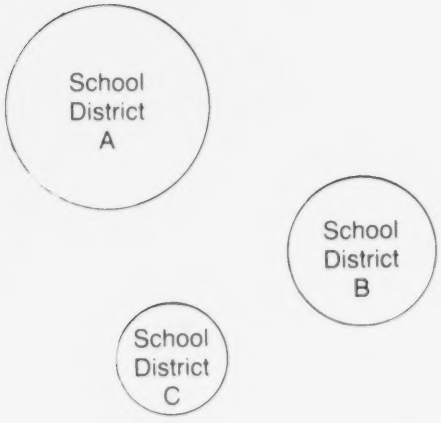
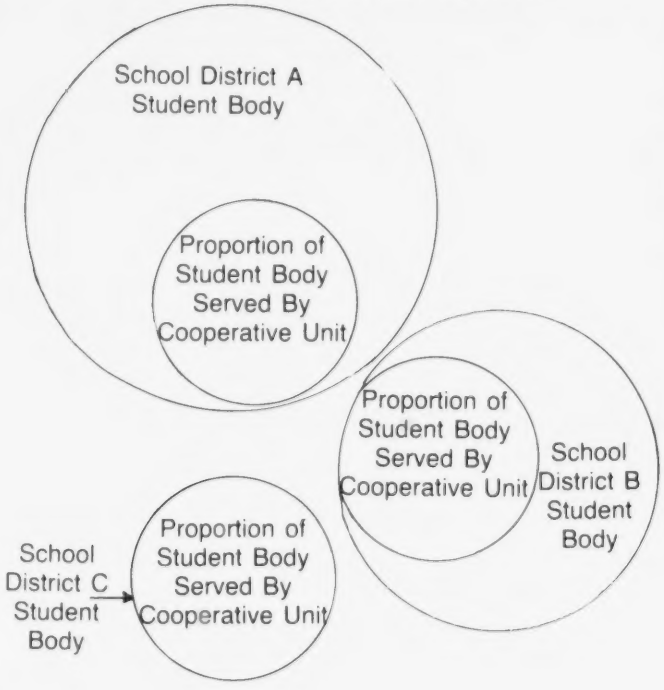


Figure 5b. Outcome: Proportion of the student body served by the cooperative unit in relation to total secondary student body for each school district.


School District A Student Body
Proportion of Student Body Served By Cooperative Unit
Proportion of Student Body Served By Cooperative Unit
School District B Student Body
School District C Student Body
Proportion of Student Body Served By Cooperative Unit

Several observations can be made regarding Figures 5a and 5b. First, the proportion of the total resources of the cooperative variation contributed by any one school district may be inversely related to the proportion of total students served by the district in the particular cooperative variation. This situation has implications for the relative degree of importance with which schools districts may view the cooperative variation and the relative amount of control or influence a school district may have in the cooperative variation. Second, the proportion of total resources of the cooperative unit contributed by a given school district and the proportion of students from each school district may or may not be directly related. This will be especially true if costs to districts for participating in cooperative variations are based on the number of students served by the cooperative unit. Various funding formulas may result in different relationships between resource contributions by a district and the number of that district's students served. Third, the proportion of a school district's total resources that are consumed by the cooperative variation may be quite different among participating districts. These potential relationships may be influential in school districts' perceptions of the costs and benefits of their participation in the cooperative unit.

In the situation depicted in Figures 5a and 5b, program elements (students, financial resources) flow between communities in unequal amounts. The elements that flow and the direction of flow may not be the same for all school districts.

Concepts of community served and school districts providing resources underlie a discussion of flow of program elements. Dimensions of the concept of flow of program elements include what flows, directions of flow, conditions necessary for flow to occur and the consequences of flow.

The first dimension of the flow concept is the identification of program elements that flow. The possible program elements that could flow between districts include financial resources, governance (board members), staff (instructional and administrative), students, materials, facilities, equipment, and advisory groups. Examples of financial resource flow include the case where several districts contribute to a central fund owned by all the districts as in the center subpattern. Other kinds of financial resource flow occur when a district or several districts pay a single district for specific services, as when students from one school obtain vocational education services in another school, and the first school pays the second for those services as could occur in the noncenter subpattern.

The governance program element refers to the governing body, which is usually a board composed of designated school board members from each of the cooperating schools.

Staff as a program element includes instructional and administrative staff and specialized professional staff.

Students include those served by the vocational agriculture or home economics programs. Students may be both youth and adults.

Materials include instructional materials and supplies.

Facilities include the physical structure in which instruction in the vocational program occurs.

Equipment includes instructional equipment and any other type of equipment specifically associated with the vocational program(s).

Advisory groups include organized citizen's advisory councils appointed to give consultation to the vocational program's development and operation.

The direction of flow dimension concerns whether or not the flow is one-way or multi-directional.

Multidirectional flow between school districts involves dispersion or "pooling" of program elements. Figures 6 and 7 represent a multidirectional flow of a single program element between districts. For example, in the center subpattern, financial resources might be contributed by each district to a fund jointly owned by all the districts involved (see Figure 6). In this case, the dollars flow among districts. In Figure 7, flow of financial resources occurs between districts in the noncenter subpattern, but there is no central pooling or dispersion entity. Payments are made by one school district directly to another.

Figure 6. Multidirection flow of a program element (finances) between school districts in a center subpattern.

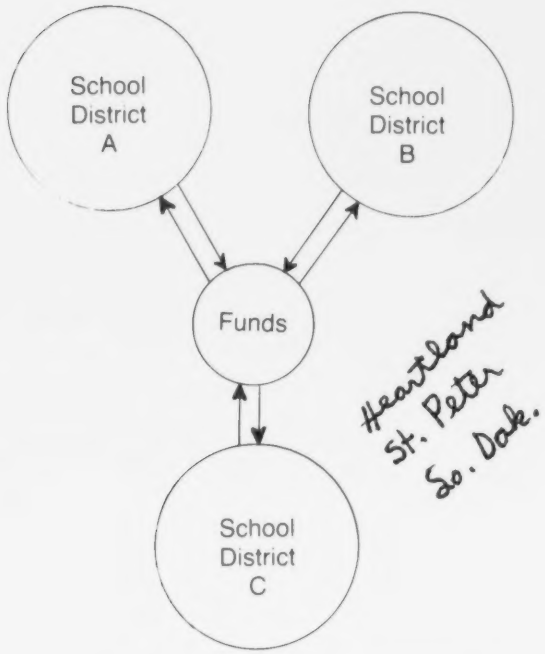


Figure 7. Multidirectional flow of a program element (finances) between school districts in a noncenter subpattern.

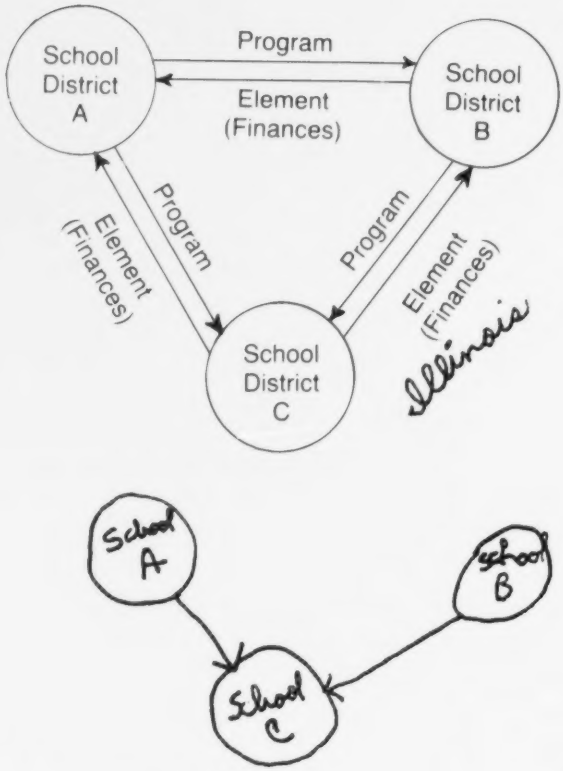


Table 3. Movement of flow of program elements for school-based vocational education delivery variations.

Variation	Facilities	Movement		
		Students	Teachers	Equipment
Centralized Secondary	Single	Yes	No	No
Decentralized Secondary	Multiple	Yes/No	Yes/No	Yes/No
Centralized Secondary/ postsecondary	Single	Yes	No	No
Decentralized Secondary/ postsecondary	Multiple	Yes/No	Yes/No	Yes/No
Mobile	Single or Multiple	No	Yes/No	Yes

It is important to emphasize that Figures 6 and 7 depict flow directions for a single program element only. These figures show that the same program element (in this case, finances) flows in more than one direction.

One-way flow occurs when a program element flows from one school district to another. This flow is represented by the case where one district's students are served by another district (flow of students to neighboring district) and the services are paid for by the first district (flow of dollars to neighboring district).

Conditions necessary for flow to occur require that a number of factors are in place. For example, when students flow between school districts, some form of transportation is essential for that flow to occur. In fact, when any physical element flows between school districts (e.g., facilities, materials, staff, equipment), some type of transportation system is necessary. When financial elements flow, some type of agreement between school districts (such as a contract) is needed; when governance elements flow, an organizational structure is necessary.

There are several consequences of program element flow. One consequence is an increase in communication among at least some sectors of the cooperating school districts. This may also be accompanied by a decrease in communication between sectors within school districts. A consequence of student flow is expanded contact with students in other school districts, less time spent in the home school during the school day, and an expansion of locations and facilities in which the student's school day is spent. Consequences of flow of physical program elements include time and money costs of transportation systems and transportation related personnel. Table 3 reveals a summary of movement or flow of selected program elements for various school-based cooperative patterns.

Examination of Table 3 reveals an interaction between the number of facilities and movement. Table 3 shows that in all single facility pattern variations, students move but teachers and equipment do not move. Table 3 further illustrates that the dimensions of facilities interact with movement of program elements. One of these dimensions is the number of facilities; a second dimension is facility mobility.

Table 3 reveals that movement of physical elements and organizational structure are not strongly related. It appears that type of facility is the single most influential factor governing what physical elements move.

A consequence of flow of financial resources is the formation of new relationships between schools. In this flow relationship, two or more school districts become business partners. Another attribute of the relationship between school districts which forms as a result of this business relationship is dependence, or mutuality. A greater information exchange regarding the financial and enrollment conditions in school districts is likely when there is a flow of governance and financial resources elements between programs.

It is apparent that each delivery pattern could generate a different flow profile. The potential importance of the flow concept is illustrated in its recurrence throughout the summarized hypothesis generated in this chapter and listed below:

1. Relationships between resources contributions to the cooperative unit by a district, size of the district, number of students served in the cooperative units, and the district's total resources may be important in the district's perception of costs and benefits of participants in the cooperative unit.

2. Facilities type and location is the most important factor governing what physical program elements move.

3. Business relationships between school districts may be characterized as dependent or independent based on the nature of the flow of program elements.

4. Flow of program elements may be accompanied by increased communication and information exchange between school districts.

5. Organizational structure determines the subpattern categorization; facilities type and location determines the variation categorization.

Summary

Center variations have an identified governance body, exclusive administrative staff, are subject to financial audit as a legal unit, and are recognized and approved as cooperative units by the state. Noncenters have none of these attributes. At the variation level (i.e., centralized secondary, decentralized secondary, centralized secondary/postsecondary, decentralized secondary/postsecondary and mobile), movement of program elements does differentiate one variation from another to some extent as shown in Table 3. Table 3 reveals that whether facilities are multiple or single structures differentiates variations and is related to movement of program elements.

The organizational structure in which a program is embedded and the nature and location of the facilities appear to be the basic determinants of the categorizations in the conceptual model. The nature of flow of program elements is also dependent on these two variables. In order to verify or invalidate the conceptual model, empirical information regarding its attributes and relationships must be obtained. The input and outcome factors identified in Chapter II provide structure and a means for collecting data which can enhance understanding of program elements, their flow and flow directions, and consequences of patterns and variations of those patterns. In examining various patterns for delivering vocational agriculture and home economics programs, the criteria used in the evaluation must be carefully selected. Several potential criteria have been identified. Further identification of evaluative criteria must be considered. Data collection toward this goal represents the next phase of this study.

CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

The central purpose of this literature review was to identify and describe systems for delivering vocational agriculture and home economics programs to students in small rural schools. Further, this study was designed to assess the impact of various systems upon human and rural community resources, and propose alternative models for rural schools to examine and use as guidelines in planning future programs. A project advisory committee provided input which led to the development of a conceptual model for categorizing delivery approaches. As the review proceeded, specific delivery approaches were identified. These systems were classified into three main categories in a revised conceptual model. These categories included (1) non-school-based approaches, (2) school-based approaches and (3) combination school/non-school-based-approaches.

This review of literature identified the school-based approach as the approach that needed further examination because:

The function of the school in rural communities is generally more than education. The rural school is an integral part of community life. To a large extent, the school serves as a community center, a source of community identity and pride, a stable aspect of the community from which inhabitants draw a part of their heritage.

Schools represent a large proportion of public resource investment.

The school-based model has been adopted and implemented as a means for delivering agriculture and/or home economics education in many rural schools in Minnesota and other states.

Since the school remains a significant organization in rural communities, research efforts designed to strengthen programs in rural schools should have an impact on the lives of youth and adults. Hence, this review focused on the clues one might find in the literature to guide further inquiry regarding vocational agriculture and home economics programs in rural schools.

The literature revealed very limited data on agriculture and home economics programs. Therefore, the entire field of vocational education was used to provide data for developing a model for delivering programs in rural areas. A review of the literature revealed an abundance of information on the topics of school consolidation and the pros and cons of small rural schools. However, research data regarding the alternative patterns for delivering vocational education is not apparent among the volumes of research reports, conference proceedings on the rural disadvantaged, curriculum proposals, and writings that reflect a wide range of opinions and viewpoints regarding the best manner of serving youth in rural areas.

Summary

From the review of literature, the following conclusions were drawn:

The centralization/decentralization dimension of cooperative pattern variations in the conceptual model depends on whether facilities are single or multiple.

The secondary/postsecondary dimension of cooperative pattern variations in the conceptual model depends on whether or not a postsecondary institution is involved.

The center or noncenter subpattern classification in the conceptual model depends on the type of organizational structure involved.

The relationships between school boards, administrators, guidance personnel, teachers, parents, and students are crucial to achievement of the educational goals assumed by cooperating community institutions.

All cooperative pattern variations involve movement of at least one program element.

Movement, as a single factor, will not differentiate patterns associated with delivery of vocational education in rural areas. Only when movement is analyzed vis a vis type of facility will it differentiate one pattern variation from another.

An analysis of the interaction of type of facility and movement will not reveal all the ways in which the patterns and variations can be differentiated and categorized. An analysis of organizational structure is necessary to differentiate and categorize cooperative delivery patterns on a more general level.

The greater the diversity of characteristics of school districts involved in cooperative arrangements, the greater the potential for conflict; diversity of certain characteristics may be more likely to produce conflict than diversity of other characteristics.

Certain relationships may potentially influence a school district's perception of the cost/benefit involved in participating with other districts in a cooperative arrangement. These relationships include (1) the proportion of total cooperative unit resources contributed by each participating district, (2) each district's proportion of total number of students served by the cooperative variation sent by each participating district, and (3) the proportion of each school district's student body that is served by cooperative variation.

Recommendations

Further research is needed regarding the delivery of vocational agriculture and home economics programs in rural schools. Limited research has been conducted in areas that focus on the rural setting. Consequently, relatively little information is available to guide program planners.

Research is needed regarding cooperative mechanisms for delivering vocational agriculture and home economics programs in rural areas. Cooperative center units exist in several states, but little is known about the extensiveness, nature, or impact.

There is a need to develop information upon which planners of vocational programs in rural areas can make decisions which consider not only alternative delivery mechanisms, but also assess school and community inputs and resulting outcomes.

In evaluating various patterns for delivering programs of vocational agriculture and home economics, it is recommended that the following criteria include:

(1) school dropout rates;

(2) attitudes of faculty in participating schools toward vocational education programs;

(3) degree to which vocational student organizations are maintained;

(4) basics of vocational course selection by students;

(5) costs borne by school districts for vocational programs;

(6) type of vocational curriculum offerings available to students;

(7) transportation requirements for vocational programs;

(8) attitudes toward school held by business, industry, parents, and the community in general;

(9) retention/outflow of young people in (or out of) the school district and community; and

(10) relationship between participating schools.

Further study leading to explication of additional criteria and validation or revision of proposed criteria is needed. The development of various standards relative to each criteria is also needed.

In view of the preceding conclusions and recommendations, it is recommended that a series of case studies be conducted. These case studies should focus on each of the delivery patterns identified in the conceptual model and should be designed to investigate concepts and relationships discussed in Chapter IV.

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APPENDIX A

ADVISORY COMMITTEE

Project Staff

Paul Marvin, Professor and Head
Division of Agricultural Education
130 Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612) 373-1021

Roland Peterson, Associate Professor
Division of Agricultural Education
130 Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612) 373-1021

Ruth G. Thomas, Head
Division of Home Economics Education
386 McNeal Hall
University of Minnesota
St. Paul, MN 55108
(612) 373-1530

Judy Haugen, Graduate Assistant
130 Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612) 373-1021

Committee Members

Signe Betsinger, Assistant Dean
College of Home Economics
32h McNeal Hall
University of Minnesota
St. Paul, MN 55108
(612) 373-0964

George Copa, Professor
Division of Agricultural Education/
Minnesota Research and Development Center
130 Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612) 373-1021 & 373-3838

Paul Day, Supervisor
State Department of Education
523 Capitol Square
550 Cedar St.
St. Paul, MN 55101
(612) 296-3350

Joyce DeBoe, Technical Assistant
Strengthening Home Economics Project
392 McNeal Hall
University of Minnesota
St. Paul, MN 55108
(612) 373-1530

Ivan Eckstrom, Superintendent
Renville Public Schools
Renville, MN 56284
(612) 329-8368

Roxanna Ford, Professor Emeritus
2292 Valentine
St. Paul, MN 55113
(612) 645-6803

John Kostishack, Director
Rural Development Council
State Planning Agency
Office of Local & Urban Affairs
200 Capitol Square
550 Cedar St.
St. Paul, MN 55101
(612) 296-2395

Sue Meyers, Extension Specialist
76 Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612) 376-3852

Glenn Nelson, Associate Professor
Department of Agricultural and Applied Economics
248e Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612) 376-3433

Edgar Persons, Professor
Division of Agricultural Education
130 Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612 373-1021

Mike Petkovich, Researcher
Department of Agricultural and Applied Economics
248 Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612) 376-3433

Janice Templin, Supervisor
State Department of Education
Capitol Square Bldg., #517
550 Cedar Square
St. Paul, MN 55101
(612) 296-4864

Charles Sederberg, Professor, Department of Educational Administration & Director, Field Studies & Surveys
300 Health Service
University of Minnesota
St. Paul, MN 55108
(612) 373-2251

Gordon Swanson, Professor
Division of Agricultural Education
116 Classroom Office Bldg.
University of Minnesota
St. Paul, MN 55108
(612) 373-5183

APPENDIX B

No. Author: Title:
Publisher: Date:

FACILITIES

SCHOOL OR PROGRAM SIZE
- Average Class Size:
- Feeder Schools:
- Transportation Time:
- Transportation Distance:
- Faculty Size:
- Faculty Training:
- Administration Size:
- Level 7-12, 9-12:
- Student/teacher ratio:

COMMUNITY/DISTRICT
- Number of Schools:
- District Population:
- School Age Population:
- Square Miles:
- Total Evaluation-tax base:
- $1 Pupil (State)
- $1 Pupil (Federal) ADA/ADM
- Administration Size:

CURRICULUM
- Vocational Programs: H.E. etc:
- % of Voc. Request Served:
- # Non-Voc Programs: Level:

TIME
- 2 Hr./Day:
- 3-4 Hr./Day:
- Alternate Schedule:
- All Day:
- Other:

STRUCTURE
- Comprehensive Consolidate:
- Voc. Center:
- Shared Voc. Offerings-St. Move:
- Shared Facilities-Faculties Move:
- Shared Teachers:

ACTIVITIES
- Student Organ. Available:
- Rate of Student Participation:

BLDG. SIZE
- Actual Enrollment:
- Building Capacity:
- No. of Graduates:

PURPOSE OF STUDY:

METHODOLOGY:

RECOMMENDATIONS/CONCLUSIONS:

COMMUNITY IMPACT

EDUCATIONAL
- Attitudes toward educ. & institution:
- Resources provided to schools:
- Curriculum:
- Future Educ. plans of Students:
- School leavers:
- Academic achieve. vs. commn. needs:
- Educ. services available & use:
- Community educ. categories:

SOCIAL
- Community demography:
- Mobility rate and pattern:
- Dysfunctional social behavior:
- Community organ. & activities:
- Human services available:
- "Life Style:"

ECONOMIC
- Local property tax levies:
- Supply & demand for goods & services:
- Rate of economic decline or growth:
- Income levels:

TYPE OF STUDY: Report; Case Study; Descriptive study; Experimental; _____

AUDIENCE: Disadvantaged; Sec.; Post Sec.; School Leavers; Teachers; _____

The University of Minnesota, including the Agricultural Experiment Station, is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, creed, color, sex, national origin, or handicap.